DATA CENTER DUEL
Microsoft woos mainframe users; IBM tries to be the big iron on campus. **PAGE 10**

OPINION
Software users are mad as hell, says Gary H. Anthes, but they're not quite ready to do anything about it. **PAGE 40**

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MAY 30, 2005 ▪ VOL. 39 ▪ NO. 22 ▪ $5/COPY

Oracle gobbled up PeopleSoft, which gobbled up J.D. Edwards — and pundits say more IT merger headaches are on the way. Here's how to prepare for the inevitable and cope with the aftermath. Page 35

WHEN IT VENDORS Merge

JOHN UELAND

IT Blogging Is One-Sided

Vendors embrace the concept, but users are slow to join in

BY PATRICK THIBODEAU

Major IT vendors are encouraging employees to start blogs to reach out to users in new ways and help make the companies seem less impersonal. But so far, the blogging conversation is mostly one-sided.

As yet, there aren't many IT managers blogging about big-picture technology issues, based on interviews with vendors and Internet searches conducted by *Computerworld*.

"Clearly, vendors have much stronger pressure on them to have a relationship with the world," said Tim Bray, director of Web technologies at Sun Microsystems Inc. But CIO blogs would get instant attention from vendors, Bray added. "If a few of those guys started doing that, you can darn well bet that we would be reading them. I sure would," he said.

Among the IT managers who do blog is Alex Scoble,

Blogs, page 16

MORE INSIDE
U.K.-based eCourier used blogging tools to coordinate software developers in three countries. **PAGE 16**

Feds Take Aim at Spyware, but IT Isn't Optimistic

Users say global scope of problem puts many purveyors beyond reach of proposed laws

BY JAIKUMAR VIJAYAN

Two antispyware bills that were passed by the U.S. House of Representatives last week could make it easier for law enforcement officials to prosecute developers of such software and help security vendors develop tools aimed at blocking the programs.

But the international nature of the problem makes it unlikely that the proposed U.S. laws will do much to stanch the spread of spyware, several IT managers said last week.

"I'm very happy that they are trying to do something," said Steve Gelfound, IT operations manager for the Endangered Child Unit of the National Center for Missing & Exploited Children in Alexandria, Va. "But it's really hard to try and control the Internet."

Gelfound added that the proliferation of spyware is a global problem. "Until everybody agrees to get together and do something, it's going to be almost impossible to stop it," he said.

ONLINE
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The two bills, which were approved by wide margins, would impose monetary penalties and jail terms for people who use spyware programs to gather information from computers, monitor usage and serve up advertisements without user

Spyware, page 45

DB2 Needs Better Backing

Users urge IBM to help push database to corporate execs

BY MARC L. SONGINI
DENVER

If IBM wants corporate executives to spend money on its database technology instead of on rival products, it must do a better job of promoting the software, said attendees at last week's International DB2 Users Group conference here.

The more IBM pushes DB2, users said, the easier it will be for them to sell the technology inside their companies and fend off attempts to replace it with Oracle or SQL Server.

"I want IBM to blow its own horn more aggressively," said a program analyst at an insurance company that runs

DB2, page 45

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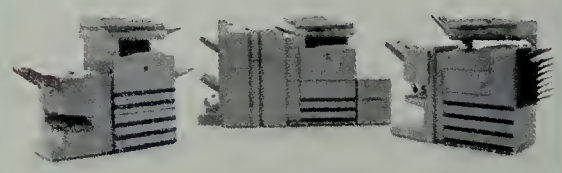

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In the Management section: DTE Energy has set up its own "open-source" software operation. Here's how it got in-house developers to buy into reuse. **Page 37**

Record Risks

In the Technology section: Despite increased regulation and high-profile million-dollar fines, many businesses still aren't identifying and managing corporate records well. The biggest liability is e-mail and other unstructured data. **Page 21**

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The Joys of Spotlight

MACINTOSH: Columnist Yuval Kossovsky takes the Tiger plunge and installs Mac OS X 10.4 on his PowerBook. His favorite feature so far? Spotlight. **QuickLink a5910**

Eye on Offshoring

IT MANAGEMENT: INS's Scott Warren suggests that successful outsourcing always begins with an alignment of the IT strategy to the overall business strategy. **QuickLink 54512**

Employee Awareness: The Missing Link

SECURITY: Symantec's regional education director offers tips for setting up a security training program at your company. **QuickLink 54495**

Sun's Storage Outlook

STORAGE: According to columnist Steve Duplessie, there are several good reasons to believe — and disbelieve — that Sun Microsystems is finally getting its act together. **QuickLink a5900**

Beyond the Supply Chain

MOBILE/WIRELESS: RFID is coming, consultant David H. Williams says, and it will have a big impact on both your business and IT infrastructure. **QuickLink 54436**

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AT DEADLINE

U.S. Cancels $1B AT&T Telecom Pact

The U.S. Department of the Treasury has canceled a $1 billion telecommunications contract won by AT&T Corp. last December, after protests from other bidders were supported by the Government Accountability Office (GAO). AT&T said it intends to remain "focused on how we can best meet the Treasury Department's needs."

CA Sees Profit Dip, Is Restating Results

Computer Associates International Inc. reported a steep fourth-quarter profit decline on a 7% increase in revenue. CA also said it plans to restate its financial reports from 1998 to 2005.

CA BY THE NUMBERS

	REVENUE	PROFIT
Q4 '05	$910M	$17M
Q4 '04	$850M	$89M

Cisco Purchases Appliance Maker

Cisco Systems Inc. has agreed to buy network appliance maker FineGround Networks Inc. in Campbell, Calif., for about $70 million in cash. Cisco plans to use FineGround's technology to provide advanced application acceleration across networks for the secure delivery of Web-based applications. The close of the deal is expected by midyear.

GAO Criticizes DHS Cybersecurity Plan

The U.S. Department of Homeland Security must do more to protect the nation's critical information infrastructure, according to a GAO report. While the department has begun efforts to fulfill its cybersecurity duties, it still must develop national cyberthreat and vulnerability assessments and contingency plans – including a plan for recovering key Internet functions, the report said.

Users Seek Tools to Ease Project Risks

Portfolio management software can help align business, IT project goals

BY HEATHER HAVENSTEIN
LAS VEGAS

ENTERPRISES are turning to project management tools to monitor risks and justify investments for application development efforts.

Users at IBM's Rational Software Development Conference here said last week that tools like IBM's Rational Portfolio Manager are helping development groups better align projects with overarching business goals.

International Paper Co. turned to IBM's portfolio management product to provide visibility into its complex development pipeline, said Mark Towne, senior manager of IT solutions and services at the Stamford, Conn.-based firm.

"We were flying blind — we had 600 to 700 projects going on, [but] we had no handle on [whether we could] deliver what was in the pipeline,"

> **"There was no process in our $26 billion company for deciding how our IT spending was going to get done strategically."**
>
> **MARK TOWNE,** INTERNATIONAL PAPER

Towne said. "There was no process in our $26 billion company for deciding how our IT spending was going to get done strategically."

Beginning in January, the paper company required that all new development projects be managed in the Rational system. Now International Paper has 439 proposals, 427 projects and more than 1,100 application enhancements being planned and monitored in the system, Towne said.

The company can check potential development projects against business goals earlier in the process, he said. Portfolio management "can be a weapon to drive shareholder value" by identifying and rejecting early on projects that won't provide a healthy return on investment, he added.

IBM is one of a number of vendors selling IT portfolio management tools, said David Kelly, president of Upside Research Inc. in Newton, Mass. Some suppliers, like Compuware Corp., have long sold such tools, he said. Others in this business include Borland Software Corp., Oracle Corp., Mercury Interactive Corp., Microsoft Corp. and ProSight Inc.

IBM joined the fray late last year with its acquisition of Systemcorp ALG Ltd. and its PMOffice tool [QuickLink 50069]. The vendor plans to update the tool at some point to provide a direct feed from development products to Portfolio Manager, said Roger Oberg, Rational's vice president of product marketing.

Kristin Leard, an architect at Hartford Financial Services Group Inc. in Hartford, Conn., said her company is looking at the IBM tool's dashboard feature, which is designed to provide tables, maps and graphical displays of status and comparisons to detail ROI and payback of projects.

Karen Abernathy, senior technical consultant at HSBC Bank PLC in New York, said her company is eyeing Portfolio Manager to provide transparency and ensure that the company is choosing the right projects to gain business value.

Visa U.S.A. Inc. is rolling out Portfolio Manager to help display the status of development progress to upper management. Visa has used Rational's RequisitePro requirements management tool to monitor the risks and progress of IT projects.

"We want [project managers] actually mitigating risk throughout the project," said Michael Levine, project manager at Foster City, Calif.-based Visa. **54679**

MORE ONLINE

IBM's Rational unit introduced tools that link testing and development apps with Tivoli systems management software:

QuickLink 54661
www.computerworld.com

New IBM Rational Head Talks Priorities

LAS VEGAS

Daniel Sabbah, who joined IBM in 1974, was recently named general manager of IBM's Rational division, which makes development and testing tools. He previously served as vice president of strategy and architecture in IBM's software group. Sabbah spoke with *Computerworld* last week during the Rational Software Development Conference here.

What will be your top priorities as the new general manager at Rational? To grow the business, the appeal of the Rational tools and methodology world – both from a pure business standpoint in terms of revenue, but also in constituencies.

So far, Rational has been extremely valuable to a set of core software engineers. We want to stick with that constituency. But we also want to start appealing to broader constituencies of developers, as well as starting to play into the connections between software engineers and business analysts, and the connection between software engineers and operations and deployment issues. I'd like to take in more of the collaboration capabilities we have in our Lotus portfolio.

What are the biggest pain points in IT development shops, and how will you mold the product offerings to meet those needs? The pressure is really on return on investment. Over the years, we have disconnected ourselves as software engineers and as IT implementers. We've focused on technology, and we haven't done a good enough job of relating that technology to business needs. Giving enterprises the tools and the capabilities to be much more successful in bridging that gap between where the business wants to go is crucial to that type of transformation.

What does IBM's recent acquisition of open-source vendor Gluecode Software mean from a tools perspective? Our acquisition of Gluecode was a sign that says "Open-source is here to stay." Open-source is an evolution of where software is going. It is something that you have to pay attention to.

What is your take on Microsoft's planned entry into Rational's traditional stronghold of team development with its Visual Studio 2005 Team System? I welcome the competition. They've got a long way to go on the team side and model-driven development side. I don't think they will ever be able to match our ability to take the model-driven design, to take the team side and map it to as strong or open or broad a middleware portfolio as what we can do.

– Heather Havenstein

HP's Unix Servers to Get Virtualization Boost

OS update will add partitioning support

BY ROBERT McMILLAN

Hewlett-Packard Co. is putting the finishing touches on an updated release of its HP-UX operating system that will add virtual partitioning capabilities to the company's Itanium-based Integrity servers.

The update will also make the virtualization technology available to users of the HP 9000 server line who want to install the latest version of HP-UX. Mary Ellen Lewandowski, director of Unix product marketing at HP, said last week that the update is due in early July as a patch to HP-UX IIi v2.

The Virtual Partitions feature, known informally as vPars, lets users install more than one copy of HP-UX on a computer. The upcoming release marks the first time vPars has been offered for the Integrity systems, which use Intel Corp.'s Itanium 2 processors.

For years, HP has included the technology in the HP 9000 machines, which are based on its own PA-RISC chips. But HP-UX IIi v2, the first version of the operating system that offers identical feature sets for both server lines, lacked support for vPars when it was released late last year. As a result, many HP 9000 users have held off on installing the new software.

Eager Users

As far back as last August's HP World user conference, customers began asking when HP would ship the upcoming release with the virtualization capabilities, said Steven Protter, a Chicago-based HP-UX consultant. "The biggest question that came up at HP World 2004 was, 'When is vPars support going to happen?' " he said.

Though HP has faced some criticism for being slow to add features to HP-UX, Protter said he's satisfied with its approach. "HP's attitude is to be reliable, and they don't have a problem with holding a release to make sure it's quality-tested," he said. "They'd rather be late than wrong."

By enabling the use of vPars with the Integrity line, HP is delivering a "sorely needed" capability, said Tony Iams, an analyst at Ideas International Inc. in Port Chester, N.Y. But, he added, the company still lags behind rivals such as IBM and Sun Microsystems Inc. on support for virtualization.

HP said that to address that functionality gap, it's developing more-powerful virtualization technology that's expected to ship by year's end.

In addition to vPars, the July update to HP-UX will include a feature called Secure Resource Partitions, which will let users separate several applications on one copy of the operating system, Lewandowski said.

HP is also working to add support for Veritas Software Corp.'s clustering and advanced file-system technologies to HP-UX. That will be included in a subsequent update due sometime between August and early October, according to Lewandowski. **54646**

McMillan writes for the IDG News Service.

HP Readies Last PA-RISC Chip

HEWLETT-PACKARD this week plans to formally announce the final processor upgrade to the HP 9000 server line plus the first models of its NonStop fault-tolerant systems that are based on Intel's Itanium 2 chips.

The new PA-8900 processor for the HP 9000 will have a much larger Level 2 memory cache than its predecessor but will operate at clock speeds that are only slightly faster, according to information posted on HP's Web site. The PA-8900 will be sold in 800-MHz, 1-GHz and 1.1-GHz versions with 64MB of on-chip cache, compared with a maximum clock speed of 1.1 GHz and a 32MB cache on the existing PA-8800 processor.

The new chip is the last in the line of HP's PA-RISC processors. The company has said it will support the HP 9000 servers that use PA-RISC chips until 2011, but it has abandoned further development of the processors as part of its embrace of Itanium 2.

The PA-8900 was expected to have clock speeds in the range of 1.2 to 1.5 GHz. But Ideas International analyst Rich Partridge said it isn't surprising that HP decided to release such a modest processor update, given that the company has bet its future on Itanium-based Integrity hardware and is trying to boost the line's use.

Giving HP 9000 users a bigger CPU performance boost would "allow them to be comfortable staying on PA-RISC for a longer amount of time," Partridge noted. "I don't think HP wants to prolong the transition."

The Itanium-based Integrity NonStop systems being announced this week were initially targeted for release late last year [QuickLink 44650]. They are replacing models based on chips from MIPS Technologies Inc. in Mountain View, Calif. HP said the new servers will be capable of running one copy of its NonStop operating system across as many as 4,080 processors. Shipments are due to begin in July, with prices starting at $400,000.

– Robert McMillan

Alcatel Adds Switches to Link Wired, Wireless LANs

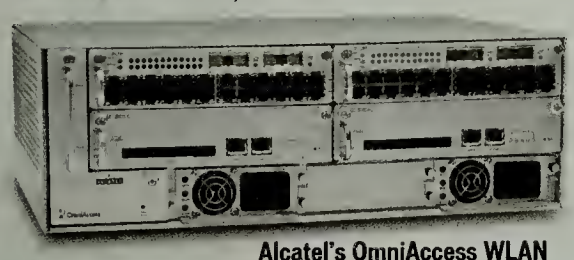
BY MATT HAMBLEN

Alcatel this week will announce a second generation of wireless LAN switches, adding functionality that further extends the security and management capabilities of wired networks to WLANs.

Alcatel is adding seven switches made by Sunnyvale, Calif.-based Aruba Wireless Networks to its OmniAccess WLAN switch family, which debuted in March 2004 with a series of devices also developed by Aruba.

The new switches will give IT administrators the ability to integrate LAN-based management tools from other vendors and Alcatel's own OmniVista software with Wi-Fi networks, said Brian Witt, director of product marketing at Paris-based Alcatel, which has its U.S. headquarters in Calabasas, Calif.

New software from Alcatel will extend LAN security functions, such as attack containment capabilities, to Wi-Fi networks, Witt added. Other security features include centralized encryption for 802.IIi firewalls, with the switches assigning access rights to end users and then applying those privileges no matter where a user connects to a network.



Alcatel's OmniAccess WLAN

Gordon College in Wenham, Mass., plans to install one of the new switches this summer as an upgrade to its existing OmniAccess device, said Russ Leathe, director of networking and computer services at the I,500-student college.

Leathe said he welcomes further integration of management and security functions for the school's wired networks and Wi-Fi LANs. "We cannot afford to maintain multiple vendors' solutions and expect them to integrate," he said, noting that at colleges especially, IT staffers are few in number and have to wear many hats.

Integrating management of wired and wireless LANs has become a priority for many network managers, noted John Miles, vice president of IT operations at Mooresville, N.C.-based Lowe's Cos., which operates about I,I00 home improvement retail stores.

"Passing [Wi-Fi] security to hardened environments is definitely needed," said Miles, who hasn't evaluated Alcatel's product offering.

Smaller vendors began offering integrated networking products three years ago, said Zeus Kerravala, an analyst at The Yankee Group in Boston. But the top vendors have started catching on more recently, he added. For example, Cisco Systems Inc. jumped on the bandwagon through its acquisition of Airespace Inc. earlier this year. And Nortel Networks Ltd. last year agreed to resell WLAN switching technology from Trapeze Networks Inc. in Pleasanton, Calif.

But Richard Webb, an analyst at Infonetics Research in Boston, said the process of integrating wired and wireless network management is still in its early stages.

"The whole point is to have converged networks and perform the same set of criteria on a wired or wireless device," Webb said. "It's creating simplicity so the poor network manager isn't having to juggle two networks." **54684**

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BRIEFS

Qwest Gives Up on Purchase of MCI

Qwest Communications International Inc. has abandoned its pursuit of MCI Inc. Qwest said it was no longer in its best interest to pursue the global long-distance and data carrier. MCI said it accepted Verizon Communications Inc.'s $26-per-share bid over a $30-per-share proposal from Qwest in part because of Verizon's greater financial stability.

Lenovo to Build U.S. Laboratory

Chinese PC maker Lenovo Group Ltd. plans to open a development center in North Carolina to collaborate with partners – including IBM, Intel Corp., Microsoft Corp., Symantec Corp. and LANDesk Software Inc. – on new personal computing technologies. The center will be staffed by engineers, programmers and product developers from the partner companies.

PalmSource Sells Name, CEO Resigns

PalmOne Inc. said it has agreed to pay PalmSource Inc. $30 million for full rights to the Palm brand name, just one day after PalmSource CEO David Nagle resigned. The Palm brand name had been co-owned by the two companies since PalmSource was spun off from Palm Inc. in October 2003. Senior Vice President Patrick McVeigh was named interim CEO of PalmSource.

Best Launches Hosted CRM Plan

Five years after it bought midmarket business applications vendor Best Software Inc., U.K. software maker The Sage Group PLC has changed Best's name to Sage Software. The renamed unit also revamped its portfolio in an effort to enter the hosted CRM business with SageCRM.com, a rebranded version of its Accpac accounting and sales software.

Clustering Challenges Storage Stronghold

Spread of stand-alone systems prompts efforts to improve NAS management

BY LUCAS MEARIAN

CLUSTERED STORAGE technology has emerged as a means for meeting a growing corporate need to better manage an ever-growing supply of network-attached storage (NAS) devices.

The technology allows IT to consolidate the management and increase the scalability of NAS, so much so that observers expect that it will one day replace the individual NAS box.

Sonja Erickson, vice president of technical operations at Kodak Easy Share Gallery, a service of Kodak Imaging Network Inc. in Emeryville, Calif., said NAS clustering technology has already saved her company hundreds of thousands of dollars in personnel costs alone.

"In terms of staffing, since we installed [a NAS cluster from Isilon Systems Inc.] a year and a half ago, we've hired no additional staff," she said. "That's hundreds of thousands of dollars saved. In terms of efficiency, it takes only a day to get the systems up and running."

The Kodak unit uses clustering technology from both Isilon and Beaverton, Ore.-based PolyServe Inc. to connect hundreds of Wintel servers at Kodak that host its online digital photo image service. Erickson uses a staff of five to manage more than a petabyte of data on the servers.

Prior to installing NAS clusters, Erickson used direct-attached SCSI arrays that lacked scalability and could take up to a month and a half to get online. In contrast, the PolyServe boxes take about a week to get online, she said, and Isilon's take about a day.

To date, most of the major storage vendors — Hewlett-Packard Co., EMC Corp., Hitachi Data Systems Corp. and Network Appliance Inc. — have released technology that can virtualize NAS systems by pooling disk capacity behind NAS engines. All have said that they are either developing or evaluating third-party clustering technology as well.

Meanwhile, start-ups Isilon, PolyServe and Panasas Inc. in Fremont, Calif., are already offering clustering software that runs across Windows and Linux.

Pushan Rinnen, an analyst at Gartner Inc. in Stamford, Conn., suggests that the clustering technology will ease management headaches better than the older virtualization technology.

Philip Rosedale, founder and chief technology officer of Linden Research Inc., a maker of online entertainment systems in San Francisco, said he has attained "extremely high I/O throughput" with a NAS cluster from Isilon that he installed about six months ago.

"We would have spent a lot more money and would have taken a lot more time with a traditional array," he said.

54675

COMPARING TECHNOLOGIES

	Clustered Storage	Traditional NAS
PROS	■ Cobbles inexpensive commodity servers together ■ CPU workload is shared among boxes for near-linear scalability ■ Automatic load balancing ■ Reliable	■ Simple to install and manage ■ Scales well ■ Reliable
CONS	■ Still a niche technology ■ Typically limited to high-performance Linux server farms	■ Requires separate management of each box ■ If one NAS head fails, performance can be affected on the second

NetApp Unveils Midrange NAS Array

FOLLOWING a trend among storage vendors that are pushing high-end functionality into lower-end systems, Network Appliance last week introduced two midrange network-attached storage boxes that offer 50% better performance than the company's highest-end NAS boxes.

The arrays can be configured with either low-cost Serial Advanced Technology Attached (SATA) drives or high-performance Fibre Channel disk drives, officials said.

Cendant Corp., a $19 billion hotel franchise that owns Days Inn Worldwide Inc. and Super 8 Motels Inc., uses 20 NetApp filers with a total of 45TB of capacity. Glenn Harper, director of data strategy at New York-based Cendant, said the company plans to add FAS3000 models during the next year.

The price/performance gains in the new midrange systems will let Cendant use fewer high-end NetApp boxes, such as the FAS960 and FAS980 arrays, according to Harper.

The NetApp FAS3000 series arrays provide four times the capacity of previous-generation midrange arrays. The FAS3020 can scale to 50TB and the FAS3050 to 84TB.

In addition, the new systems mark the first time Sunnyvale, Calif.-based NetApp is offering a RAID 6 configuration on a NAS box. RAID 6 allows an array to handle a failure of any two drives without loss of data or downtime.

"All the stuff you used to get on the midrange line, you're seeing that same technology ported down to the midrange," said John Kelly, vice president of technology at Jefferson Pilot Financial Insurance Co.

Kelly has NetApp FAS800 and FAS900 series boxes spread among five campuses in the U.S. He plans on purchasing FAS3000 series NAS arrays for their "flexibility and for cost control" by early next year.

Natalya Yezhkova, an analyst at market research company IDC, said that during 2004, major storage vendors added entry-level and midrange products that were "often accompanied by more-sophisticated software that was previously available only on high-end systems."

IDC analyst Brad Nisbit said he likes NetApp's mixed-drive offering. "The midrange is the perfect target right now," he said. "We have seen most [EMC] Clariion CX units ship with at least one shelf of ATA disks. The difference now for NetApp is that they are officially embracing ATA technology for primary storage."

Meanwhile, NetApp also debuted two V-Series, formerly G-Series, virtualization gateway devices – the NetApp V3020 and V3050 – based on the new FAS3000 series. The gateways can use HP, EMC or IBM disk subsystems as back-end storage.

– Lucas Mearian

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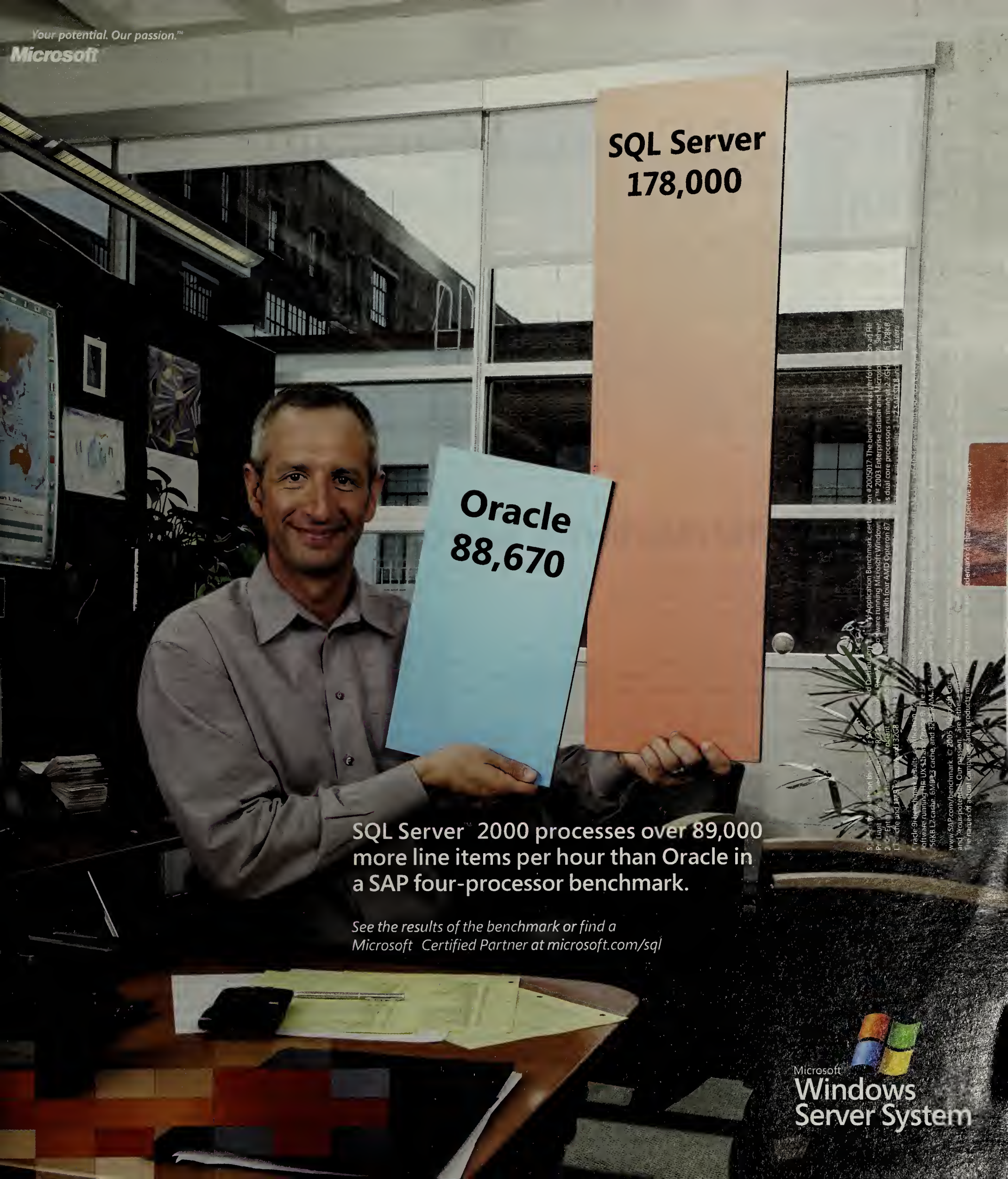
Microsoft



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Microsoft
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Microsoft Courts Mainframe Shops, Pushes Windows Use

Vendor holds first migration event; some users tout cost benefits of switch

BY CAROL SLIWA

SWAPPING OUT big-iron boxes in favor of Windows servers may not be the hottest of IT trends. But at its first Mainframe Migration Conference last week, Microsoft Corp. said it's making steady progress with its efforts to court mainframe users.

Three mainframe-to-Windows converts at the Chicago event pointed to expected cost reductions, one of the main benefits that Microsoft has been touting since it forged the Mainframe Migration Alliance with Micro Focus International Ltd. in April 2004.

Microsoft said the alliance now includes over 50 software vendors, systems integrators and other companies that offer products and services aimed at helping users migrate off mainframes. The vendor noted that the conference drew more than 200 attendees.

But Dale Vecchio, an analyst at Gartner Inc., said users are more likely to switch to Unix than Windows if they move off the mainframe. He rated Microsoft's chances of making a big impact on mainframe users at less than 20%. "It's a completely different culture," Vecchio said. "Shifting from a multitasking mainframe environment running mixed batch and online [jobs] to Windows is a big shift."

Some mainframe users were ripe to make a change, though. For example, Glen MacGregor, assistant vice president of business systems at Lombard Canada Ltd. in Toronto, said the firm's IT department proposed replacing its IBM mainframe at budget time last year. Lombard's analysis showed that IBM's z/OS operating system and various mainframe tools would cost about $1 million per year more than running a Windows-based environment would, he said.

So the company hired Cratos Technology Solutions Inc. in Oakville, Ontario, to migrate 4,800 programs running on the mainframe to Windows. Cratos CEO Andrew Wickett said 92.3% of the Cobol code remained intact when the first application was migrated using Micro Focus tools.

The company plans to do a "grand slam" conversion next March, MacGregor said. He added that Lombard expects a return on its investment in the first year after the switch.

Willem Gorter, a Paris-based program manager at AtosEuronext, a joint venture between the Euronext trading exchange and IT services firm Atos Origin SA, said the biggest costs associated with mainframes are the salaries of the workers needed to run them.

AtosEuronext's Amsterdam office recently moved six applications, including securities referential data administration for the Amsterdam exchange, from a mainframe to two clustered single-processor servers running Windows. The overall migration also included a shift of its core clearing and cash trading applications to a Hewlett-Packard NonStop system in Paris and its derivatives trading systems to Sun Solaris servers in London.

> **"Shifting from a multitasking mainframe environment running mixed batch and online [jobs] to Windows is a big shift."**
>
> **DALE VECCHIO**, ANALYST, GARTNER INC.

The company calculated that it would have spent close to $454,000 per month if it had kept the remaining six applications on the mainframe, Gorter said. Running them on Windows will cost $88,000 per month, with the savings coming largely from the elimination of 30 mainframe staffers. Only six are needed to support the Windows systems, and they can also do other tasks, Gorter said. **54678**

IBM Plugs Big Iron to the College Crowd

Aims to fill IT vacancies as baby boomers retire

BY THOMAS HOFFMAN

IBM is trying to convince growing numbers of young engineers that the mainframe isn't dead yet.

For example, thousands of college students have participated in an IBM-created mainframe training and curriculum program that's aimed at generating interest and building skills in the field as baby boomer IT workers near retirement age.

Since its launch two years ago, more than 130 colleges and universities worldwide have joined the IBM Academic Initiative. Under the program, IBM helps schools develop and share mainframe-related curricula, said Mike Bliss, director of zSeries technical support and marketing at IBM.

Some students say the program is awakening a previously unknown interest in mainframe technology. "I wouldn't have been interested in the mainframe [much] at all if I hadn't been exposed to" the IBM program, said Joshua Smith, a 24-year-old programmer/analyst at The Timken Co., a Canton, Ohio-based bearings manufacturer.

While a senior mathematics major at Canton-based Malone College in 2003, Smith took an assembler programming course offered through the IBM program. The course also contributed to his landing a job at Timken.

Prior to taking the class, said Smith, "my opinion of the mainframe was that it was a dying breed." But during the program, a trusted professor told Smith that mainframes are still very much in use and that employers continue to recruit workers with those skills.

For instance, American Fidelity Assurance Co. still processes roughly 75% of its workload on mainframes, said John Schille, CIO at the Oklahoma City-based company. "We would be interested in supporting university education geared toward training in this environment to supplement staff replacement needs, specifically upcoming retirement issues," Schille said.

AT A GLANCE

IBM Academic Initiative

WHAT IT IS: A program the vendor launched two years ago to encourage college students to study mainframe computing.

WHAT IT OFFERS: The initiative lets students and faculty at more than 130 universities and colleges worldwide access mainframes for lab work. IBM also works with colleges to develop curricula.

WHO'S INVOLVED: Thousands of computer science students have already participated. IBM has a goal of putting 20,000 people through the program by 2010.

Preparing for the Future

Schille isn't alone. Over the past few years, LexisNexis Group, a legal research provider in Dayton, Ohio, has hired a handful of entry-level IT workers with mainframe-related experience, said Allan McLaughlin, senior vice president and chief technology officer. "The potential retirement [of] some of our very specific mainframe talent keeps me up at night," he said.

IBM isn't expecting a mass exodus of mainframe talent, said Bliss. "But we do need to get some younger folks started to build those skills," particularly since it takes a few years for IT workers to embrace the complexity of the environment, he said.

According to Bliss, last October IBM set a goal of putting 20,000 people through the program by the end of 2010.

Earl Rodd, an assistant professor of computer science at Malone College, said that the school got involved in the IBM program in early 2003 because mainframes are a "significant" part of corporate computing. "Our [computer science] program is intentionally broad instead of deep in order to expose people to a lot of things they probably haven't seen before," he added.

Chris Baran, a sophomore computer science major at Clarkson University in Potsdam, N.Y., who is interning at IBM this summer, is active in the New Hire forum, a group of IBM Academic Initiative students and customers that is trying to interest students in studying the mainframe.

The group is planning to launch a z/OS programming contest in August in which student participants will have access to mainframes at Marist College in Poughkeepsie, N.Y. "The main focus of our contest is to get students excited about working with the mainframe," said Baran. "We're trying to get people to realize that mainframes are not dead." **54671**

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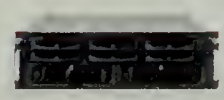

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BRIEFS

Novell Posts Loss On 1% Sales Growth

Novell Inc. said significant investments made to reposition the company led to a $15.8 million second-quarter loss. Sales rose slightly in the quarter.

NOVELL BY THE NUMBERS

	REVENUE	LOSS
Q2 '05	$297M	$15.8M
Q2 '04	$294M	$15.4M

Sueltz Resigns From Salesforce.com Post

Patricia Sueltz has resigned from Salesforce.com Inc. just over a year after the hosted CRM provider poached her from Sun Microsystems Inc. to oversee its marketing and operations. Sueltz joined Salesforce.com several months before an initial public offering that left Salesforce.com with a market valuation of more than $1 billion. She previously headed Sun's services group.

AT&T Nabs Deals Worth $14.5M

AT&T Corp. has won two contracts totaling $14.5 million from American Builders & Contractors Supply Co. (ABC) and Kaman Corp. Under the $8.5 million pact with ABC, a wholesale distributor of roofing and siding materials, AT&T will provide an IP virtual private network. The $6 million deal with Kaman, a maker of military and aerospace equipment, calls for AT&T to provide data and voice networking services.

MCI Evaluates Data Security Options

MCI Inc. is evaluating new corporate security technologies following the theft of a notebook computer containing personal information, including Social Security numbers, of about 16,500 current and former employees. The missing data was stored on a laptop that was stolen last month from a car parked in the home garage of an MCI financial analyst.

Insider Threats Mount

Security experts cite need for strong internal controls to prevent data thefts

BY JAIKUMAR VIJAYAN

THE RECENT rash of data compromises at large companies, several of them caused by insiders, highlights the need for IT managers to develop tight internal controls for monitoring and enforcing compliance with corporate data-usage policies.

But the trend among companies to open up their networks to suppliers, contractors, business partners and customers is making that an increasingly difficult task to accomplish, according to security analysts.

Just last week, Bank of America Corp. disclosed that information on about 60,000 of its customers had been stolen by a New Jersey-based data-theft ring that also allegedly took electronic account records from three other banks. The ring, which police said included eight employees from the four banks, is accused of systematically stealing account data on a total of nearly 700,000 customers [QuickLink 54542].

Both the bank thefts and a similar incident involving data aggregator ChoicePoint Inc. that came to light earlier this year were allegedly perpetrated by end users who had legitimate access to the data they took, said Michael Rasmussen, an analyst at Forrester Research Inc.

"This kind of breach poses a much bigger threat than the traditional hacker," Rasmussen said. That's especially true for large enterprises with global operations and suppliers, as well as offshore outsourcing relationships, he added.

Kim Milford, information security officer at the University of Rochester in New York, said she thinks the best way to address insider security issues is to establish an ongoing awareness program. Such a program needs to be tailored for different groups, including IT staffers, end users, corporate executives and external partners, she said.

Also crucial is the need for administrative controls, such as job descriptions that spell out security responsibilities, acceptable data-use guidelines and confidentiality agreements, Milford said. "IT management tends to throw technical controls at security exposures instead of thinking of the good old-fashioned human factors," she noted.

Companies also need to have good password, user account and configuration management practices, as well as processes for disabling network access when employees are terminated, according to a report issued May 16 by the U.S. Secret Service and the CERT Coordination Center at Carnegie Mellon University.

In addition, formal processes are needed for handling employee grievances and monitoring reactions to events such as workers being reprimanded or passed over for promotions, the report said. Those findings are based on an investigation of 49 cases of insider attacks via computer systems between 1996 and 2002.

"In 92% of the cases, a negative work-related event triggered the insider action," said Matt Doherty, a special agent in charge of the Secret Service's National Threat Assessment Center. The good news, though, is that most of the attacks were planned and not impulsive acts, which are hard to prevent, he said. **54681**

Mitigating Insider Security Threats

SET AND ENFORCE password and remote access policies.

USE configuration management techniques to help detect malicious code in systems.

FOLLOW procedures for system logging and monitoring and for data backup and recovery.

CREATE internal processes for reporting concerns about the behavior of employees.

SOURCE: REPORT ISSUED BY THE U.S. SECRET SERVICE AND THE CERT COORDINATION CENTER

Start-ups Push Apps for Tracking Corporate Ideas

BY JAIKUMAR VIJAYAN

Bright Idea Inc., one of several small vendors offering software for managing corporate innovations, this week will introduce a hosted service designed to help users collect and prioritize new ideas and then track their development.

The Web-based service is aimed at midsize companies and divisions of larger organizations that are looking to source ideas from wider groups of employees than they usually rely on, said Matthew Greeley, president of New York-based Bright Idea. Companies could use the service in product development or as part of business process improvements and cost-cutting activities, he added.

In concept, innovation management tools like the ones developed by Bright Idea are similar to product life-cycle management (PLM) applications in that they give companies a central repository for gathering and managing new ideas, said Navi Radjou, an analyst at Forrester Research Inc.

Radjou noted that the software provides workflow and analytics capabilities for identifying, categorizing and ranking good ideas and routing them to the right people. "In a sense, PLM takes over where idea management leaves off," he said, predicting that some some of the companies in the market may eventually be bought by PLM vendors.

Robert Bosch Tool Corp., a maker of power tools in Mount Prospect, Ill., is using Bright Idea's innovation management suite to consolidate ideas from across its different product groups. The company recently conducted a two-week campaign soliciting ideas from all of its employees on how to improve one of its products, said Peter Neumann, Bosch's innovation manager.

Creating a Wish List

Bright Idea's software allowed employees to submit their ideas to a central database, where 143 responses were vetted by marketing and engineering teams and assigned ranks based on how good the ideas were. "Some of the top ideas were integrated into the marketing wish list for the next generation of the product," Neumann said.

"Idea and innovation management software tools can have a fairly high impact," said Jonathan Spira, CEO of Basex Inc., a New York-based consulting firm. "They have not yet been widely adopted simply because they are not yet widely known."

Almost all of the vendors selling such tools are small, Radjou said. Bright Idea — which until recently was called General Ideas Inc. — is a 15-person firm, but it counts Bosch, Bristol-Myers Squibb Co., Honeywell International Inc. and Hallmark Cards Inc. among its clients. Boston-based Imaginatik and Carlsbad, Calif.-based Akiva Corp. sell similar software as well.

Bright Idea already offers packaged software that starts at $65,000 for a server license and an additional $60,000 for integration and customization. The hosted service starts at a monthly fee of $49 per user, Greeley said. **54682**

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Hitachi Replacing PCs With Secure Thin Clients

TOKYO

HITACHI LTD., one of Japan's biggest electronics companies, plans to replace thousands of employee PCs in that country with its thin-client devices because of data security concerns, officials said at a news conference last week.

Over the next two years, the company will roll out 16,000 thin clients internally, IT chief Kazuo Furukawa said. "Security is becoming an extremely severe problem, and passwords are no longer enough," he said. Instead of relying on passwords, Hitachi's thin clients authenticate users via a plug-in Universal Serial Bus device that acts as a key.

The move to diskless computers follows a trial deployment of 2,000 thin clients that started in February. Eventually, Hitachi may replace the desktop and notebook PCs of virtually all of its 242,000 employees in Japan, according to Furukawa.

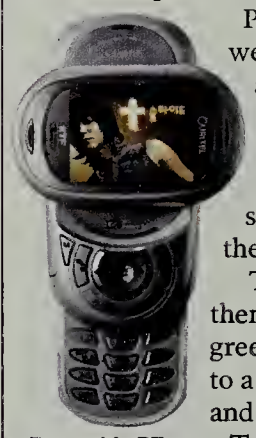
Hitachi also plans to sell its thin-client desktops and notebooks — which use the Windows XP Embedded operating system and Intel Corp.'s Celeron processors — to other companies in Japan, starting in the second half of this year.

■ PAUL KALLENDER, IDG NEWS SERVICE

Pantech Gives Mobile Phones a New Shape

TOKYO

MOST CELL PHONES are shaped like candy bars or clamshells. But South Korean vendor Pantech Co. plans to change that in June when it starts selling mobile phones that slide open — with a twist.



Pantech's PT-K110 cell phone

Pantech said last week that its PT-S110 and PT-K110 phones have 2-in. portrait-format color screens that slide up to reveal their keypads.

The displays can then be twisted 90 degrees, converting them to a landscape format and giving the phones a T-shape, the Seoul-based company said.

The new phones include a music player, a 2-megapixel digital camera, an electronic dictionary, a text-to-speech function and an optical character recognition scanner.

The phones will be sold only in South Korea for a retail price of about 500,250 won ($500 U.S.), Pantech said.

■ PAUL KALLENDER, IDG NEWS SERVICE

U.K. Retailer Moves to VoIP, Converged Network

OVER THE NEXT five and a half years, London-based retailer Marks and Spencer Group PLC plans to implement a voice-over-IP (VoIP) system at its U.K. stores and a converged voice/data IP WAN for all of its international operations, the company's networking contractor disclosed earlier this month.

Cable & Wireless PLC also announced the extension of its network management contract with Marks and Spencer until the end of 2011.

The London-based international network carrier explained that it plans to continue to manage the retailer's existing voice and data networks while it works to move all of the communications traffic onto a single IP network and deploy VoIP in the U.K.

54642

Compiled by Mitch Betts.

Briefly Noted

France Telecom SA last week completed its buyout of Amsterdam-based network operator Equant NV. The price tag, including debt assumed by Paris-based France Telecom, was 1.26 billion euros ($1.58 billion U.S.). Equant provides data communications services to users in 220 countries and territories [QuickLink 52194].

Swiss International Air Lines Ltd. in Basel this month announced the appointment of Frank Meyer, 34, as executive vice president and CIO, effective June 1. Meyer, previously head of systems planning at the airline, succeeds retiring CIO Robert Borntrager.

Network Healthcare Holdings Ltd. (Netcare), the largest for-profit health care operation in South Africa, will spend 100 million rand ($15.3 million) over the next two years on an ERP system based on SAP AG's software, the vendor announced last week. Johannesburg-based Netcare runs 62 hospitals, 56 clinics and 80 pharmacies.

Governments Plan Data Grid Projects

BY PATRICK THIBODEAU

Some governments and not-for-profit organizations such as hospitals are beginning to look at data grid technology as a means to improve services, lower operating costs and spur economic development.

Separate data grid plans involving hospitals, schools and municipal agencies in Cleveland and within Singapore's government were announced this month. Such efforts will likely take years to reach fruition. But that doesn't stop people like Vincent Miller, CIO at Cleveland-based MetroHealth System, from seeing their potential.

"Wouldn't it be neat if we could tie ourselves together as part of a regional health organization?" Miller said. "From a conceptual perspective, it makes a lot of sense."

IBM, under the new Economic Development Grid initiative, has started working with a regional group called OneCleveland to develop data grids in that city. Miller said a plan for a grid connecting area hospitals is in the early discussion stages.

How They Work

A data grid is similar in concept to a compute grid. But instead of tapping CPU resources from different systems to improve computational efficiency, data grids use a middleware layer and metadata framework to give connected end users a centralized view of information, no matter where it's stored on a grid.

Vendors such as Avaki Corp., which was acquired this month by Sybase Inc., offer technology for developing data grids. But thus far, most grids have been deployed internally by businesses for pooling research or financial data. Creating a data grid that spans multiple organizations is relatively new, said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H.

Singapore has set up a CPU grid for developers of computer games aimed at the Asian market that they can use to test and deploy their products. Now the government is working with the country's construction industry and the National University of Singapore on a multiyear effort to develop a data grid. Sun Microsystems Inc. is among the vendors involved in the project.

Khoong Hock Yun, assistant CEO at the Infocomm Development Authority in Singapore, said last week that the plan calls for a grid that allows government agencies, construction firms, suppliers and specialty contractors to exchange data and files.

Yun said the government wants to help construction firms become more efficient and reduce building costs. The overarching goal is to help make Singapore a more attractive business location to multinational companies, he added.

Grid Ideas

IBM and OneCleveland have several potential data grids in mind, in addition to a proposed health care project:

- **A K-12 schools outreach grid** would coordinate the sharing of information among local schools and universities.
- **A higher-education collaborative grid** would support broad data sharing among colleges.
- **A public information grid** would link municipal agencies.

Enabling the data sharing requires overcoming technical hurdles, such as developing security capabilities, interfaces between systems and rules that ensure regulatory compliance. But those involved say the bigger challenge is organizational.

"Many of the companies by nature don't want to collaborate," Yun said. He added that he has succeeded in getting a core group of private-sector firms to participate in the project. But doing so hasn't been easy, Yun acknowledged.

Scot Rourke, president of OneCleveland, which operates a broadband networking service for nonprofits and universities, also sees organizational issues as critical. "It's less of a technology challenge than it is coordinating the various needs and interests of the participants," he said. 54680

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Blogging Software Aids Package-Tracking Project

Tools coordinate development in different countries

BY THOMAS HOFFMAN

WHEN eCourier Ltd. developed an innovative online package-tracking system for its customers last summer, it had to coordinate work among front- and back-end developers in Italy, Germany and the U.K.

But instead of using traditional project management software to monitor the project, the developers used weblogging tools from Providence, R.I.-based Traction Software Inc. to generate project updates and provide a record of the work.

A small but growing number of IT organizations are beginning to use blogging tools for those same purposes, say industry experts. "They're really starting to pick up in popularity" among project teams, said Jack Duggal, a principal at Projectize Group, a Simsbury, Conn.-based project management consulting firm.

The eCourier package-tracking system, supported by Global Positioning System software contained in each courier's handheld device, went live last October. It allows customers like Paul Smith, a U.K.-based clothier, to log onto eCourier's Web site to see where a courier picked up a package, where it's being dropped off and where the package is at any time.

For eCourier, a London-based express courier company, using blogging tools to help develop the Java-based mapping system made sense for several reasons, said Jay Bregman, eCourier's co-founder and technology director. "I wanted to cut costs as much as possible, so I couldn't afford to be traveling from Italy to Germany to the U.K." to manage the project teams, he said.

At a cost of roughly $1,000 for a five-person license, the blogging tools from Traction Software more than paid for themselves in travel savings alone, said Bregman. "And instead of playing a massive game of telephone [tag] between [developers], this gave us a source of record," he said.

BREGMAN says blogging tools saved him travel costs.

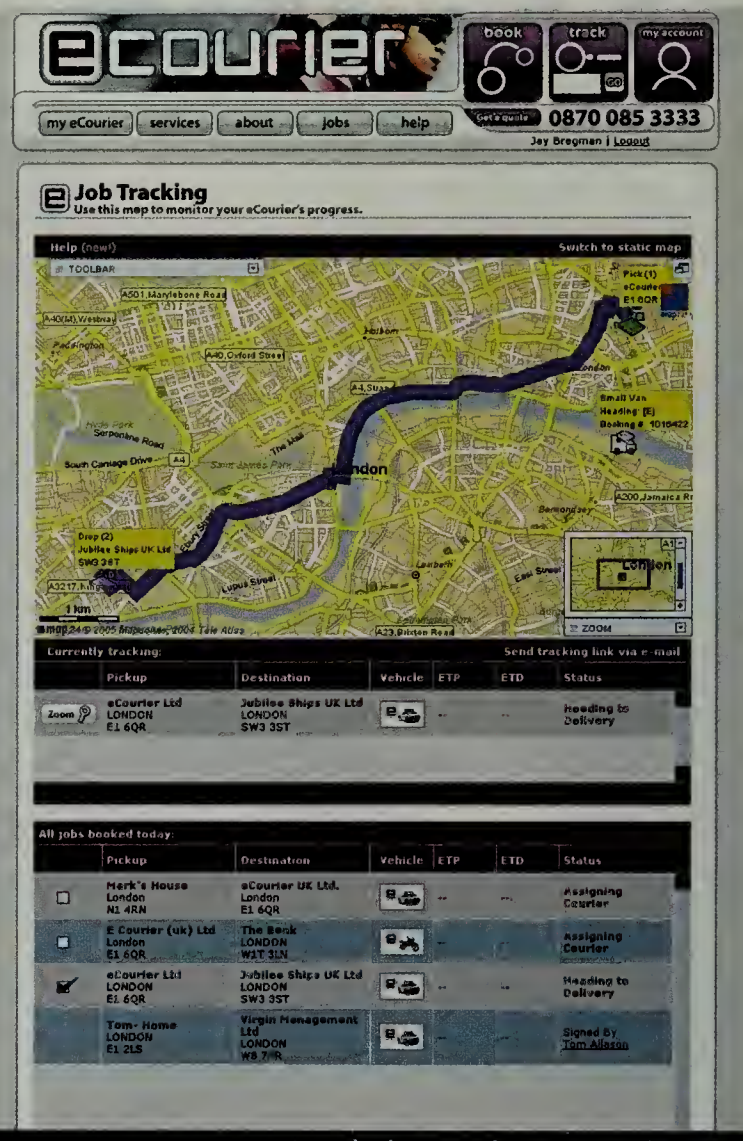
Users of Traction Software's blogging tools can scroll through a list of projects and determine who posted an update to a project and when, said Jordan Frank, the vendor's vice president of marketing and business development. Project activities can be prioritized, and project managers can see when each phase has been completed.

The software can also be used like wikis, which allow all of the information to be edited by users who have permission to do so, said Frank. Unlike blogs, wikis allow visitors to edit a Web page in addition to making their own postings.

Although Bregman raved about the low cost and benefits of using blogging software, one consultant questioned why teams wouldn't simply use free blogging software.

"Why not do it for free with open-source software and get the same benefits of having a forum for discussion?" said David L. Ross, a project management consultant at David L. Ross and Associates in New York.

Duggal sees it differently. "If the software only cost them $1,000, it's well worth the functionality" and support options, he said. 54663



USING eCOURIER, customers can track where a package is at any given time.

Continued from page 1

Blogs

who heads IT at Palo Alto, Calif.-based law firm Tomlinson Zisko LLP. Scoble said last week that he blogs mostly about technical issues, seeking product recommendations from other users and even writing about customer support snafus.

The blog, which he started about 18 months ago, has served as a good way to record his work and solicit advice, Scoble said. There's also some personal satisfaction involved. "If I can help a couple of people with experiences that I've had, that's great," he said.

And Scoble sees professional benefits to writing a blog as well. It puts his IT knowledge and experience "out there," he noted. "It tells prospective employers what you know."

Scoble may be more comfortable with blogging than are most IT managers partly because of the efforts of his well-known blogging brother, Robert Scoble, who is an employee at Microsoft Corp.

Robert Scoble writes a blog called "Scobleizer: Microsoft Geek Blogger" that's ranked No. 31 on the list of the 100 most-linked blogs compiled by Technorati Inc.'s blog-tracking search engine.

SLOOP says one roadblock to IT managers blogging is that they don't have enough time.

Christopher Sloop, chief technology officer at AWS Convergence Technologies Inc. in Gaithersburg, Md., participates in a public group blog at his company, which develops the widely used WeatherBug software. Sloop said he thinks it's important to communicate about the software and discuss technical issues with users.

But he added that it's difficult to find the time to work on the blog. That may also be an issue for other IT managers, Sloop said. Blogging by users "may occur more on a customer support level or a programmer level," he said.

Among major vendors, IBM this month detailed a policy that encourages its 320,000 employees to blog. IBM isn't prohibiting workers from blogging about the company but said they should include their names and, when relevant, roles at IBM. The company also said bloggers need to follow its conduct code, not reveal sensitive issues and not cite customers without their approval.

Sun is hosting more than 1,000 employee blogs that are public and said it lets workers discuss any topic in them. Microsoft has some 1,500 blogs, many on technical issues related to its products. IBM currently hosts about 30 blogs written by employees, and Hewlett-Packard Co. said it's also hosting a relatively small number at this point.

David Gee, vice president of marketing for the management software business at HP, said he believes blogging will take root at user companies as they hire younger IT workers who blogged regularly in college. "It will be pushed by that generation doing what they do at home and wanting to have it in the office," he said. "We've seen history of that in the industry time and time again." 54685

FROM OUR ARCHIVES

Go to our Web site to read about the legal liabilities of corporate blogging and the precautions companies can take:

QuickLink 50037
www.computerworld.com

A SUPPLEMENT TO IDG PUBLICATIONS

Bridging the IT and Business Needs Gap

Keys to Successful Business Intelligence Deployment

By Dan Vesset

The evolution of information technology (IT) is continually producing new tools for productivity enhancement. Business intelligence (BI) tools and applications, for instance, have undergone several generations of improvements, but research into the BI market suggests that considerable productivity can still be tapped by implementing currently available BI software. The business need for such tools is more pressing than ever, and so is the challenge to IT departments to get BI implementations right. ▶

IDC
Analyze the Future

The Pillars of Decision-Process Automation

IDC's research has shown that organizations derive two primary benefits from BI projects: productivity gains and business process enhancements. These two primary benefits can be achieved by selecting BI tools that address the following four major variables in decision making, which in turn can lead to sustained competitive advantage:

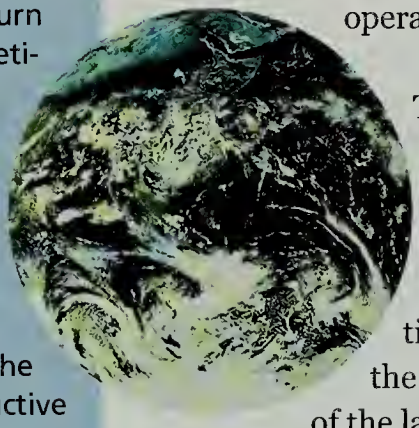
- Speed
- Accuracy
- Insight
- Relevance

Speed and accuracy of decision making are the primary contributors to increased productivity. On the other hand, advanced predictive and descriptive analytics, as manifested in the insight and relevance of decision making, contribute actively to business process enhancements.

Competitive advantage comes from the speed and accuracy of decision making, as well as from assessing the relevance of information to a decision and from gaining insight in seeking and evaluating possible decision alternatives. Because many types of decisions are recurring or repeatable (such as pricing, extending credit or allocating resources), decision-making processes exist that are amenable to automation.

However, decision process automation is achievable only when all four variables outlined above are used in software architectures that support decision making.

IDC defines business intelligence software as the software that supports speed, accuracy, relevance and insight in decision making. BI, in turn, is a segment of the broader business analytics market that includes tools for data integration, data warehouse management, query and reporting, data mining, technical data analysis, and spatial information management as well as prepackaged applications for customer relationship management (CRM); financial, business performance management; supply chain; and operational analytics.



The need for these software solutions has never been greater. For instance, data published last year by the U.S. Department of Labor has shown a slowdown in productivity, which suggests that perhaps the low-hanging fruit of the excesses of the late 1990s has been picked, and therefore businesses need to find new ways to increase productivity if they hope to gain competitive advantage.

A new investment cycle in productivity-enhancing tools appears imminent, and current investment trends in BI software support this conclusion. In 2004, the BI tools market experienced better-than-expected performance, growing by 9.5% to reach $4.25 billion in worldwide software revenue. IDC forecasts a 2004–2009 compound annual growth rate (CAGR) of 6.0%, which reflects some changes in the underlying market, such as a shift in software sales from BI tools to packaged analytic applications and database-embedded BI components. IDC estimates that the broader business analytics market reached $14.5 billion in 2004.

Critical Misalignment

Despite a healthy adoption rate, however, the deployment of software to support decision-making processes continues to lag significantly behind the money that

companies spend on software to process transactions. IDC research shows that for every dollar spent on transaction processing applications or capturing and getting data into databases, only $0.25 is spent on getting the data out for business analytics to support decision-making and statutory reporting processes.

The result is a critical misalignment between business needs and the information technology intended to serve those needs. For example, a recent IDC survey revealed that only about 10% of business managers feel very confident with the statement that the reports developed in their organizations deliver relevant information to the right people at the right time. About 40% of the managers surveyed reported feeling not at all confident or only somewhat confident.

Although the misalignment between IT and business is ultimately a business problem, IT managers must address several distinct IT challenges to successfully implement and support BI:

▶ **Defining system requirements.** BI implementation is often a vague and iterative process because of the difficulty in determining in advance all the information forms that users want—the type of reports or the alerts for certain kinds of information. Usually the BI system is replacing a relatively manual data-tracking process that may employ an Excel spreadsheet, for example. So after the new BI system is online, users begin asking for more—more data sources, more different kinds of reports, more key performance indicators (KPIs). Each of these requests needs to go through the IT department, and while some are relatively easy to implement, others take more time and testing. Unlike other IT systems, such as financial applications that remain comparatively static following implementation, BI systems are dynamic and continually evolving.

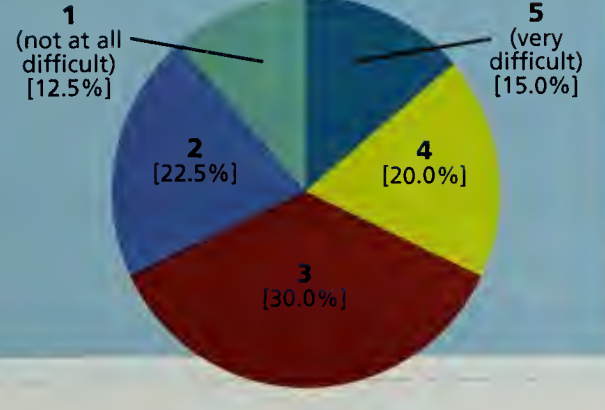
▶ **Transforming disparate data into a single model.** All the information that populates user "dashboards" and "scorecards"—the BI interfaces—must be brought in from different systems and molded into a single data model. This is a complex data transformation task. For example, IDC has found that in BI projects for CRM systems, 70% of the work is just around sourcing and mapping the data—before the information can be accessed and distributed. A related issue is

Challenge of Maintaining Business Intelligence Data Quality

Q. Using a 5-point scale, where 5 is "very difficult" and 1 is "not at all difficult," please rate the difficulty of maintaining business intelligence data quality.

n=40

Source: IDC, 2005



This article is abstracted from a forthcoming white paper by IDC, commissioned by Oracle and titled "The State of Business Analytics—Best Practices, Benefits, Challenges and Shortcomings."

To read the entire white paper, log on to **www.idgpartners.com/oracle/print**

maintaining data quality, which according to a recent IDC survey, is an ongoing challenge. A full 35% of survey respondents said that data quality maintenance is either "very difficult" or "difficult," versus only 12.5% who answered "not at all difficult" (see chart, page 3).

▶**Managing user expectation/experience.** Users often expect to get a lot of data immediately and to have the system solve tough business problems. As described earlier, BI system development is inherently iterative, complex, and ongoing. Furthermore, while BI is being extended to address decision-making processes, the types of decisions for which the technology is best suited tend to be operational decisions that are foreseeable and repeatable—decisions that employees have to make on a regular basis. BI will not necessarily hand users their next big idea, such as the creation of a new product. Moreover, although 70% of respondents to a recent IDC survey said that existing BI systems let them effectively make operational decisions, 30% of organizations still have systems that don't allow for effective operational decisions.

▶**Guaranteeing system availability.** BI is not just for executives anymore. Increasing numbers of line-of-business managers and lower-level employees are accessing BI systems to make important decisions as part of their normal duties. BI usage is, in effect, reflecting a larger business trend toward decentralization, the flattening of organizational hierarchies, and increased decision-making responsibility for front-line workers. As BI follows this trend, it becomes more operational, and while BI isn't yet on a par with transaction processing systems, it's clearly getting there. Downtime on transaction processing systems is intolerable, and it's increasingly less tolerated on BI systems. This indicates that BI has become truly integrated in the business processes of many companies. IT managers can expect this trend to grow with the advent of real-time information delivery; as BI information becomes more time-sensitive, system downtime becomes a bigger problem. ●

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All Together Now
Systems integrators spend their professional lives making technologies interoperate. Here are the steps they say are key to planning and executing successful integration projects. **Page 26**

QUICKSTUDY
Supercomputers
When is a computer a supercomputer? In the end, it's all about performance. **Page 30**

SECURITY MANAGER'S JOURNAL
More Than a Token Overhaul of the VPN
Getting approval to deploy two-factor authentication was only half the battle. Now Mathias Thurman must redeploy the VPN infrastructure to make it work. **Page 32**

RECORD RISKS

Driven by million-dollar fines, businesses are using technology to comply with legal and regulatory requirements – and regain control over electronic records.

By Robert L. Mitchell

A FEW YEARS AGO, most companies didn't give much thought to electronic records management. But a spate of scandals, lawsuits and new regulations has changed all that.

Despite renewed attention to e-records management, however, many organizations still lack automated systems to efficiently process all e-records requested during a legal discovery proceeding. Yet retrieving such records — and the penalties for noncompliance — can cost businesses millions of dollars.

"E-litigation is an extremely expensive endeavor," says Jane Connerton, corporate records manager at The Procter & Gamble Co. in Cincinnati. While P&G has a records retention policy, finding and retrieving records during legal discovery can be a daunting challenge — especially when the records are on backup tapes.

"We had a case that, after a week's worth of discovery, we calculated that backup tape suspension and legal review of the e-records was going to cost us a million dollars," Connerton says. And, she adds, such requests aren't uncommon for businesses of P&G's size.

In response, companies are turning to records and content management systems to automate the processes for identifying and categorizing records of all types, establishing and enforcing retention schedules, and maintaining accessibility to those records.

"You're trying to identify what has become a record, associate a rule with it and blow it away when it's no longer needed," says Julie Gable, principal of Gable Consulting in Philadelphia.

Companies must also comply with myriad local and federal regulations that vary by industry. For example, SEC Rule 17 requires that brokerages store records in a nonrewritable, nonerasable format. Sarbanes-Oxley Act Section 802 requires some records to be held for seven years. Other requirements are triggered by events, such as health care regulations that require records to be kept for a certain period after a patient's death.

The Elusive E-record

Records serve as evidence, says Gable. "They accrue to business processes, show what transpired during transactions, confirm rights and obligations, and provide motive for corporate action." What constitutes a record is determined by business, regulatory and legal requirements. Those definitions and policies are typically set by a corporate records manager, but IT must manage those records.

Today, records take many forms. While printed documents may be collected in file cabinets, e-records are scattered across a wide range of repositories. They may be embedded in e-mail, instant messages and other unstructured data that account for up to 40% of business data flows, according to the Storage Networking Industry Association (SNIA).

"E-mail is the biggest issue we see," says Barclay T. Blair, director of the IT compliance practice at Kahn Consulting Inc. in Highland Park, Ill.

In 2004, for example, Banc of America Securities LLC was fined $10 million and Philip Morris USA Inc. and Altria Group Inc. $2.75 million for failing to produce e-mail records in a reasonable time frame and failing to preserve documents after being told to do so. But despite such penalties, 65% of organizations still don't have an e-records policy for legal hold orders, let alone the technology to enforce it, according to a survey by the Association of Records Managers and Administrators (ARMA) and the Association of Information and Image Management.

The typical IT strategy of saving everything doesn't help, says Larry Medina, a records management contractor in Danville, Calif. "All nonrecord material should be destroyed as soon as is practical," he says. "If you have things you didn't need to retain, they become ticking time bombs in your system." Those documents could be used to the detriment of the company in legal proceedings, he says.

But more important, they add to the cost of discovery, says Deidre Paknad, president of record information management (RIM) software vendor PSS Systems Inc. in Palo Alto, Calif. "If there's a legal hold, all the information you have, whether a business record or not, is discoverable," she says.

Once a policy is in place for deleting end-of-life records, halting those processes in response to a legal hold order is difficult. Many organizations lack adequate technology and processes to deal with the problem, Gable notes.

IT needs to work closely with records managers, says ARMA President Dave McDermott. As assistant records manager at agribusiness conglomerate J.R. Simplot Co. in Boise, Idaho, McDermott worked with his IT group to develop a retention requirement for all backups.

Because records may be needed in the future, eliminating or archiving based on activity level or disk space usage doesn't work, says Michael Peterson, program director of the SNIA Data Management Forum.

At a minimum, good records management practices require interaction among IT, the corporate records manager, the business units that own the data and the legal department. Today, part of the problem is ignorance of records requirements within some IT organizations, says P&G's Connerton.

Evolving Tools

RIM software helps to define and categorize records and set retention policies. But the programs, originally created to manage paper records, are still evolving to handle e-records in places ranging from the ERP system to e-mail. To deal with this challenge, most products copy files and related metadata into a central repository. Records management tools also integrate with desktop productivity software, e-mail programs and archiving software to identify records and establish an audit trail for compliance purposes.

RIM has caught the attention of enterprise content management (ECM) software vendors such as EMC Corp.'s Documentum Inc. unit. They have snapped up RIM products and integrated them into their own suites.

But Connerton says centralization is no panacea. "In a major corporation, you're never going to have a single repository for all records," she says. While P&G's seven divisions do use RIM and ECM tools for some records, that's not enough. "What we've done is mapped out where the records are, who owns them from an IT perspective and how we can get them to facilitate the discovery process," she says.

At FirstEnergy Corp. in Akron, Ohio, one-third of the company's records are in its ERP system and can't be easily copied into a central repository. Senior IT systems analyst Teresa Straight says she's trying to figure out how to connect a FileNet system with SAP in order to manage records in the company's data warehouses.

Most RIM products still rely on manual processes or prompt the end user to identify, classify and check in records. Products such as FileNet Corp.'s Records Manager are at the forefront of a trend to automate that. With e-mail volume exploding, automated identification and classification of records is crucial, says Craig Rhinehart, director of compliance products and solutions at Costa Mesa, Calif.-based FileNet. "If you think you'll get 10,000 users to manually declare and classify records, you're wrong. Enforce your policy at the technology layer, not at the user layer," he says.

Connerton says she wouldn't trust an automated categorization system alone — a sentiment Blair agrees with. "You can get part of the way there with really good tools, but ultimately, you need to rely on employees," he says, and that requires both policy and training.

At P&G, employees attend a 15-minute training session and an annual refresher. They are also required to review their files annually to comply with P&G's retention schedules, Connerton says.

Records management best practices must be infused throughout the IT systems that create or touch records, practitioners say. Connerton is working with IT to integrate e-records guidelines into the P&G's information systems. With business units ranging from pharmaceuticals to dog food producers, that's not an easy task.

"We can't impose them immediately because there are legacy systems that are too expensive to retrofit," explains Connerton. It will be five to seven years before every document repository is in compliance, she says.

Larry Hawkins, director of records and information compliance at FirstEnergy, says he collaborates with IT on new system designs. "We don't procure technology without a thorough review," he says. **54300**

SIX TIPS FOR HANDLING E-RECORDS

Jane Connerton, corporate records manager at Proctor & Gamble, recently oversaw the establishment of e-records guidelines and is working with IT to implement them across all data repositories. She offers these six tips for IT organizations:

- **Know the record contents of data, and manage the life cycle accordingly,** as opposed to managing it based on volume or location (for example, 60GB on Unix Server 3).
- **Understand how the record will be retrieved and used by primary users,** and design the system to meet those specifications.
- **Work with your legal or regulatory experts** and know what laws or regulations apply to the records in your system.
- **When preserving a record, maintain all the metadata, too,** in order to adequately define the context.
- **Don't keep backup data any longer than necessary to meet operational needs,** and never longer than the record itself.
- **When erasing a record, simply deleting the file isn't good enough.** Use a process or technology that completely obliterates the data so it can't be retrieved later.

WHEN RECORD-KEEPING GOES WRONG

Here are a few examples of organizations that have paid a price for inadequate records management.

Who: Lucent Te[illegible]o
When: May 2004
Accusation: Providing incomplete records in response to a Securities and Exchange Commission investigation.
Consequences: $25 million fine

Who: UBS Warb[illegible]rg LLC
When: July 2004
Accusation: During an ongoing gender-discrimination lawsuit (*Zubulake v. UBS Warburg*), deleted relevant e-mails despite court order; failed to locate, preserve records and produce e-mail and other documents in a timely manner.
Consequences: Ordered to produce relevant documents and pay for redeposition of some witnesses and pay legal expense of the plaintiff.

Who: Pf[illegible]p
When: July 2004
Accusation: Deleted e-mail that was over 60 days old for more than two years after a legal order to preserve all documents relating to litigation. Failed to follow the company's internal procedures for document and e-mail preservation.
Consequences: $2.75 million fine

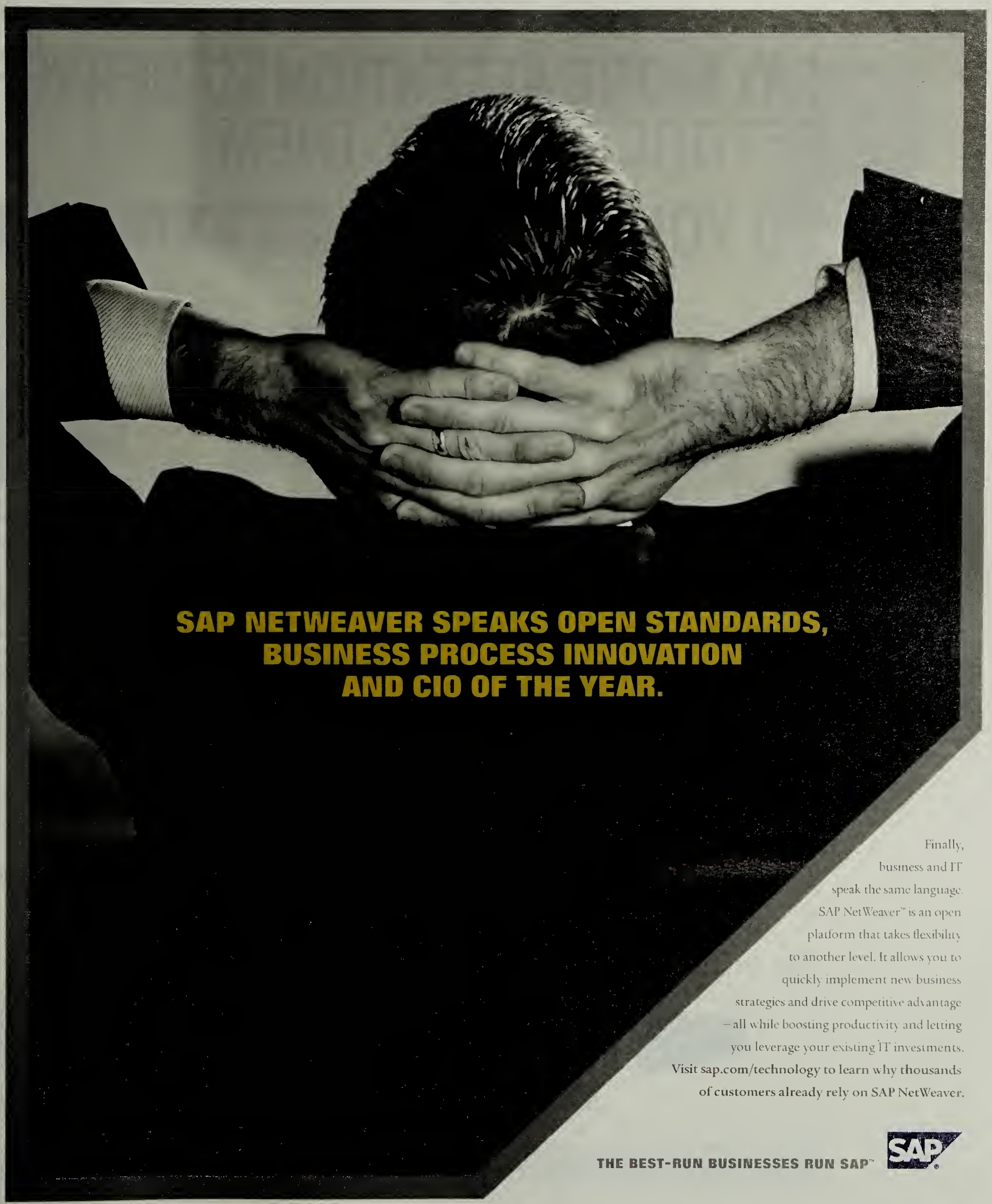
Who: B[illegible]
When: March 2004
Accusation: Violation of Exchange Act record-keeping requirements, including failure to produce e-mail records in a timely manner and failure to preserve documents after an SEC staff request to do so.
Consequences: $10 million fine; censure.

MORE ONLINE

Read a collection of crucial information about e-records and the rules that govern them:
QuickLink 54584

Records management is becoming a big part of information life-cycle management:
QuickLink 54310

See a list of standards organizations that are working on e-records:
QuickLink 54585
www.computerworld.com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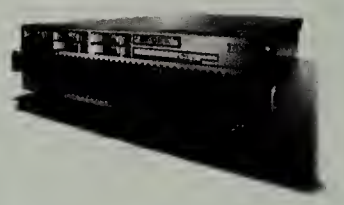

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LASSE SKARBOVIK

All Together Now

Systems integrators earn their living making technologies work together. Here, some veterans offer advice on planning and executing successful integration projects. **BY DREW ROBB**

TOO OFTEN, promising integration projects wind up as expensive flops. The FBI's failed four-year, $170 million Virtual Case File project is only the latest example to make the news. On May 24, FBI Director Robert Mueller reported to Congress that the first phase of the replacement system won't be ready until 2006, at a cost yet to be announced.

While few integration projects are that costly in pure dollar terms, they can still make or break an organization. With the increasing commoditization of both hardware and software, technology alone is no longer the key. Rather, business success hinges on how well those products are integrated to advance business goals.

"The applications themselves are not the differentiator," says John Schmidt, president of the Integration Consortium, an industry group working to establish standards, guidelines and best practices for integration projects. "It's how well you can glue them all together and connect with customers and suppliers."

Schmidt has worked in the IT industry for 27 years and has spent the past 15 helping major North American and European retail, financial and telecommunications corporations integrate their systems. *Computerworld* asked Schmidt and other experienced systems integrators for advice that could help IT managers with their integration projects.

Getting Agreement

Systems integration is often thought to refer to the effort to make systems work together harmoniously. Perhaps less understood, however, is that those systems must also be closely aligned with the overall business strategy.

"The most critical phase of the project includes really understanding its purpose before it starts and interviewing all stakeholders to find out their definition of what will make the project successful," says Bob Woodruff, CEO of project management consulting firm Robbins-Gioia LLC in Alexandria, Va.

Unfortunately, few companies appear to heed this advice. Woodruff has worked in project management for 20 years and says that people with the most clout in an organization tend to get their projects funded, whether or not they are the most important projects for the company as a whole. This can wreak havoc for the IT staff.

"These sponsors are typically unaware of the impact caused by inserting new technology into an already existing environment," he says. "This leaves the IT manager in the unenviable position of trying to integrate systems that just don't work well together."

For example, Woodruff is overseeing the update of his own firm's enterprise architecture. Systems that are based on Oracle or SQL databases are simple to integrate — just write some SQL queries, pull the data out, reformat it and dump it into the other system. Systems that export the data into an Excel spreadsheet require a bit more work. Even worse are the proprietary, nondatabase systems, some of which require manual re-

entry of data into the new systems.

"Some pieces we may not convert because of the cost involved, the timing, the real value to the company," Woodruff says. "If we are going to replace it in a year or two, we will just leave it."

He advises avoiding projects without sufficient executive sponsorship or funding, pet projects that provide only short-term gain and projects that have ill-defined requirements.

To be fair, though, IT can also be guilty of failing to coordinate integration projects. Michael Kuhbock, CEO of K-Bear Corp., a business strategy consulting firm in Calgary, Alberta, has seen cases where IT departments bought middleware licenses, assembled project teams and created budgets before consulting with the business units.

"On one case, it took another three months to bring the business on board," Kuhbock says. "That happens day-to-day in the market."

Assembling the Team

After hashing out the project scope and purpose, it's time to assemble the integration team. That can involve a mix of internal and external resources.

"IT managers can find the expertise they need in several places," says Liz Mann, managing director of Mycroft Inc., an identity management and security firm in New York. "They can find it within their own organization, they can utilize product-specific expertise from the vendors, and they can use expertise from integration consulting companies."

Major projects require expertise in a broad array of technologies.

"There have been many waves of application technology over the years that seem to move in regular seven-year cycles — for example, mainframes to mini- to microcomputers, or monolithic to client/server to Web service applications," Schmidt says. "The shift from one wave to the next is neither instantaneous nor necessarily economically justified, so an integration methodology must deal with three to four generations of technology at once."

While the right mix of technical skills is critical, integration projects can be scuttled by the "religious" wars surrounding some technologies.

"You should stay agnostic as applied to technology and stay away from those who are devout," says Gerard McGowan, vice president of technology and services at Innovativ Inc., an integrator in Edison, N.J.

Schmidt says this also applies when selecting a consultant or vendor to join the project. When someone tries to present a single solution, such as implementing a service-oriented architecture, he shows that person the door.

"It is not that a service-oriented architecture is bad, but it is presented as if it will solve all your integration problems," he explains. "There are no silver-bullet solutions, and you should avoid that pitfall."

Limits of Standards

An issue raised by several of the integrators is that while you should definitely look to incorporate industry standards when designing an enterprise architecture, they don't necessarily guarantee interoperability.

"Even successful standards, such as TCP/IP, are not universal," says Schmidt. "When it comes to software standards such as Cobol or Java, interoperability and transportability come at the expense of vendor-specific extensions, forcing developers to use a less-than-ideal core set of 'pure' language features."

This is particularly true when implementing new technologies. McGowan points out that while voice over IP is becoming more popular, it's still better to rely on a single vendor than to hope that pieces coming from different companies will work together properly.

"There is talk about generic [Session Initiation Protocol] stacks and open-source SIP, but when you try to integrate that stuff, it tends to get relatively ugly, relatively quickly," McGowan says.

The same applies for authentication, according to Mann. The Security Assertion Markup Language (SAML) is designed to allow the exchange of authentication materials between dissimilar authentication systems or multiple versions of a single system that have been installed across a corporate or divisional boundary. But developers have options in how they implement the standard, so although different products can be made to talk to one another, they won't necessarily do so out of the box.

"You may find that two vendors are SAML-compliant, but when you try to make that exchange, it doesn't work," Mann says. "It is not that either one failed to implement the standard, but they both did it slightly differently."

But these problems tend to disappear, or at least get easier to deal with, as time goes on. "The more mature technologies tend to have good, well-proven cross-vendor support," says McGowan.

No Five-Year Plans

Because technology and business needs are constantly changing, you can't operate with Soviet-style five-year plans. Mergers and acquisitions, software and hardware updates, changing economic conditions and numerous other factors all mandate achieving shorter-term results. So break larger projects down into small pieces.

"I think people recognize today that new technology deployments are an ongoing process," says Mann. "They don't do these 'pie in the sky' projects anymore."

She recommends breaking longer-term projects into 90-day chunks, each with a discrete deliverable.

"If you take too long to deliver infrastructure and discrete successes are not noticeable, you will probably lose your funding or lose momentum on your project," Mann says.

In working on smaller pieces, however, don't lose sight of the bigger picture. It requires a balance between the strategic and the tactical, and every bit must advance the overall long-term business and IT plans.

"Integration is often seen as a project-based technological event rather than a mission-critical, enterprisewide business strategy," Kuhbock cautions. "We need to change that."

Integrating Expertise

Successful integration requires that you continually gain and update information on the best ways to link systems. One way to achieve this is to become active in trade groups, such as the Integration Consortium, that develop and share information on how to integrate systems. You probably won't be the first one to try a particular type of project, and you'd be better off learning the lessons from people who have been through it before than finding out on your own 12 months into the project.

"It is important for end users and suppliers to engage in collaborative efforts in the industry," says Schmidt. "When you do, play an active role in these organizations; don't just read the papers others write."

Kuhbock emphasizes that integration failures often boil down to weaknesses in the personnel, not just the technology, and training on integration is essential for success.

"Then we can achieve a 100% success rate instead of the failure rates we hear about now," he says. "An automobile manufacturer wouldn't make it if three out of 10 cars it built couldn't make it off the lot." **54478**

FIVE LAWS OF INTEGRATION

John Schmidt, president of the Integration Consortium, has worked in IT for nearly three decades. He has spent half of that time managing large-scale systems integration projects for telecoms, financial institutions, retailers and other businesses in the U.S., Canada and Europe. Schmidt sums up his experience in what he calls "The Five Laws of Integration."

1 **The whole is greater than the sum of the parts.** "A false notion a lot of people have is that you can decompose the job into its component parts," Schmidt says. "But when you do that, end-to-end dependencies get lost and you don't see the impact of a change on a system that is four or five systems down the chain."

2 **There is no end state.** Integration is an ongoing process, not a final destination. Deploying the application is just the beginning. It must remain useful despite later changes in business needs or operating environment.

3 **There are no universal standards.** "Even standards themselves change and morph, and there are vendor-specific implementations," Schmidt says. "Standards are great, but you have to be practical. Standards are not going to solve all your problems."

4 **Information adapts to meet local needs.** Rather than trying to impose an enterprise data model that precisely defines the information within all the applications the company uses, gain agreement on information motion within the organization.

5 **All details are relevant.** Modeling changes involves abstracting away details in order to make complex data more understandable. But even items such as software versions or drivers can produce significant differences, so test the actual production system. Don't just rely on the model.

– *Drew Robb*

Robb is a Computerworld *contributing writer in Los Angeles. Contact him at drewrobb@attbi.com.*

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Supercomputers

DEFINITION

Supercomputer is a relative term, referring to a computer that leads all others in processing capacity and calculation speed at the time it's introduced.

BY JAN MATLIS

SUPERCOMPUTING is all about pushing out the leading edge of computer speed and performance. The sports metaphors that arise as research sites compete to create the fastest supercomputer sometimes obscure the goal of crunching numbers that had previously been uncrunchable — and thereby providing information that had previously been inaccessible.

Supercomputers have been used for weather forecasting, fluid dynamics (such as modeling air flow around airplanes or automobiles) and simulations of nuclear explosions — applications with vast numbers of variables and equations that have to be solved or integrated numerically through an almost incomprehensible number of steps, or probabilistically by Monte Carlo sampling.

The first machine generally referred to as a supercomputer (though not officially designated as one), the IBM Naval Ordnance Research Calculator, was used at Columbia University from 1954 to 1963 to calculate missile trajectories. It predated microprocessors, had a clock speed of 1 microsecond and was able to perform about 15,000 operations per second.

About half a century later, the latest entry to the world of supercomputers, IBM's Blue Gene/L at Lawrence Livermore National Laboratory, will have 131,072 microprocessors when fully assembled and was clocked at 135.3 trillion floating-point operations per second (TFLOPS) in March.

The computer at Livermore will be used for nuclear weapons simulations. The Blue Gene family will also be used for biochemical applications, reflecting shifts in scientific focus, making intricate calculations to simulate protein folding specified by genetic codes.

QUICK STUDY

The early history of supercomputers is closely associated with Seymour Cray, who designed the first officially designated supercomputers for Control Data Corp. in Minneapolis in the late 1960s. His first design, the CDC 6600, had a pipelined scalar architecture and used the RISC instruction set that his team developed. In this architecture, a single CPU overlaps fetching, decoding and executing instructions to process one instruction each clock cycle.

Cray pushed the number-crunching speed available from the pipelined scalar architecture with the CDC 7600 before developing a four-processor architecture with the CDC 8600. Multiple processors, however, raised operating system and software issues.

When Cray left CDC in 1972 to start his own company, Cray Research Inc., in his boyhood hometown of Chippewa Falls, Wis., he abandoned the multiprocessor architecture in favor of vector processing, a split that divides supercomputing camps to this day.

Cray Research pursued vector processing, in which hardware was designed to unwrap "for" or "do" loops. Using a CDC 6600, the European Centre for Medium-Range Weather Forecasts (ECMWF) produced a 10-day forecast in 12 days. But using one of Cray Research's first products, the Cray 1-A, the ECMWF was able to produce a 10-day forecast in five hours.

National Pride

Throughout their early history, supercomputers remained the province of large government agencies and government-funded institutions. The production runs of supercomputers were small, and their export was carefully controlled, since they were used in critical nuclear weapons research. They were also a source of national pride, symbolic of technical leadership.

So when the National Science Foundation (NSF) decided in 1996 to buy a Japanese-made NEC supercomputer for its Colorado weather-research center, the decision was seen as another nail in the coffin of U.S. technological greatness. Antidumping legislation was brought to bear against the importation of Japanese supercomputers, which were and still are based on improvements on vector processing.

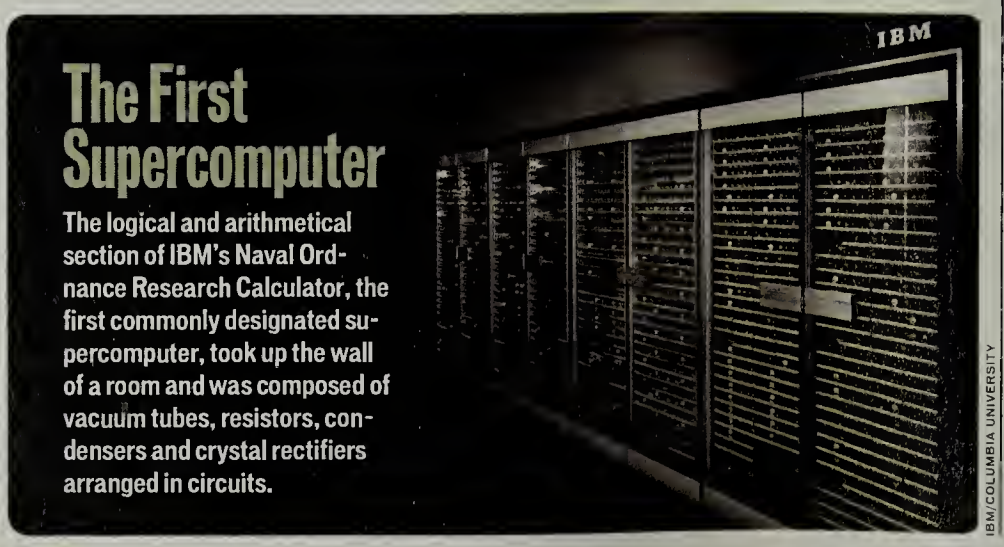
But within two years of the NSF's decision, the supercomputing landscape changed. The antidumping decision was revoked. And the ban on exporting supercomputers to nuclear-capable nations was also partially rescinded. What had happened?

For one thing, microprocessor speeds found on desktops had overtaken the computing power of yesteryear's supercomputers. Video games were using the kind of processing power that had previously been available only in government laboratories. The first Bush administration defined supercomputers as being able to perform more than 195 million theoretical operations per second (MTOPS). By 1997, ordinary microprocessors were capable of over 450 MTOPS.

Technologists began building distributed and massively parallel supercomputers and were able to tackle the operating system and software problems that had deterred Seymour Cray from multiprocessing 40 years before. Peripheral speeds had increased so that I/O was no longer a bottleneck. High-speed communications made distributed and parallel designs possible.

As a result, vector processing technology may be in eclipse. NEC Corp. produced the Earth Simulator in 2002, which uses 5,104 processors and vector technology. According to the Top500 list of supercomputers (*www.top500.org*), the Simulator achieves 35.86 TFLOPS. IBM's Blue Gene/L, the current leader, is expected to achieve about 200 TFLOPS. It consumes 15 times less power per computation and is about 50 times smaller than previous supercomputers.

As detailed on the Top500 site, the trend in supercomputers is toward clusters of scalar processors running Linux and leveraging the power of off-the-shelf microprocessors, open-source operating systems and 50 years of experience with the middleware needed to pull these elements together. **54435**



The First Supercomputer

The logical and arithmetical section of IBM's Naval Ordnance Research Calculator, the first commonly designated supercomputer, took up the wall of a room and was composed of vacuum tubes, resistors, condensers and crystal rectifiers arranged in circuits.

The Linpack Benchmark

IN ORDER TO COMPARE the speeds at which supercomputers operate, they need to be performing the same tasks. The Linpack benchmark measures how fast a computer solves dense systems of linear equations and measures a system's floating-point computing power.

The benchmark is based on Linpack, a software library for performing numerical linear algebra on digital computers that was written in Fortran by computer scientists Jack Dongarra, Jim Bunch, Cleve Moler and Pete Stewart in the 1970s.

Dongarra, now a distinguished professor of computer science at the University of Tennessee, later introduced the Linpack benchmark, which is used as the performance measure for ranking supercomputers in the Top500 list of the world's fastest computers.

– *Jan Matlis*

Matlis is a freelance writer in Newton, Mass. He can be reached at jmtgpcmcm@aol.com.

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More Than a Token Overhaul of the VPN

A move to two-factor authentication gives our security manager a chance to secure his VPN infrastructure. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

OUR EXECUTIVE TEAM finally approved the use of two-factor authentication for all virtual private network access into our corporate network. This means we'll get to overhaul the way we deploy our Cisco VPN infrastructure.

Currently, when a user requests virtual private network access, we provide the VPN software and a VPN profile that the user has to import into the VPN client.

The user then launches the VPN software, authenticates and is placed in a group that's defined within the Cisco Secure Access Control Server (ACS). As things now stand, all groups are configured to allow access to just about everything in the company.

This isn't very secure, of course, because a user within the sales organization, for example, has the ability to reach out to production Unix servers. Granted, if the server was configured properly, access would be denied if the user didn't have a valid account on the Unix server.

But if the server wasn't configured properly, a malicious user could gain unauthorized access. What's more, a malicious user who isn't barred from any part of the network could attempt any number of other activities, including denial-of-service and man-in-the-middle attacks. So, as we now move to strong two-factor authentication, we have an opportunity to tie down our systems much more securely.

In implementing two-factor authentication, we're using RSA Security Inc.'s SecurID tokens, with corresponding access control provided by Cisco Systems Inc. The RSA SecurID token servers and associated tokens provide only for authentication; the tokens don't dictate which areas of the network an employee will have permission to access. This authorization piece is handled by the Cisco ACS.

With the ACS, groups of users are defined and then assigned specific networks or hosts that they can access.

For example, a contractor assigned as an auditor in the finance department doesn't need access to human resources systems. We can configure a group within the ACS and place in that group only the finance servers that the contractor will need to perform his job, plus some common areas of the network, such as the company Web site and the Exchange e-mail servers.

Once we've configured all of the groups we're going to need, it's just a matter of placing each user in the correct group. So, how do we do that? Manually entering thousands of users is too cumbersome and time-consuming to be an option. For this task, we'll turn to a directory server. We use Lightweight Directory Access Protocol for many functions within the company and have had great success with it.

> **It's just a matter of placing each user in the correct group. So, how do we do that?**

Our LDAP environment is becoming more and more useful, allowing us to more easily handle chores such as storing user credentials or granting access-control rights for applications.

Duplicating Groups

In the case of this VPN project, we want to create the same groups within LDAP that we have defined for our Cisco ACS access groups. Once those groups exist within LDAP, a help desk administrator responding to an approved and verified request for VPN access can simply call up a Web-based account-provisioning dashboard and mark a checkbox for the appropriate access group.

After that, when the user launches his VPN client and authenticates with the SecurID token, the Cisco ACS will first look to see if the user exists within the ACS. If the user can't be found there, the ACS will go out to our LDAP server to see if he exists there.

If the user is found in the LDAP server and has been assigned to a corresponding access group, then he will be added to the ACS and placed in the appropriate access group. And if the user isn't found in the LDAP server, then he can be assigned to a default restrictive group.

I know this seems like a lot of transactions, but in practice, it should take only a couple of seconds. The only difficulty we're having is that the current incarnation of the Cisco ACS has some restrictions on how it can interoperate with LDAP. Once those issues are resolved, we can move forward with the proposed architecture.

We've decided that instead of providing our users with the hardware security tokens, we will deploy software tokens. The software tokens are installed on users' PCs and provide the same level of security as the hardware tokens. The software, combined with a unique "seed" file and a user-configured PIN, provides for two-factor authentication.

The software frees users from having to carry a token with them, but the problem is that the software tokens aren't as user-friendly as the hardware tokens.

With the hardware tokens, a user inserts his PIN, directly followed by the number displayed on the token, which becomes his passcode.

With the software token, when the user keys in his PIN, the token presents a passcode, which the user has to copy and paste from within the token to the application he's accessing.

The software tokens have other advantages, since they are considerably cheaper and can be mass-deployed more easily than the hardware — we just provide Web links and use provisioning software.

One more thing: There's a nice integration feature when using the Cisco VPN product with the RSA software tokens. When the user accesses the VPN, he's prompted only for his PIN, and on the back end, the software automatically fills in the appropriate token code from the RSA software.

So for now, we'll continue to define our access groups and come up with a work-around for getting users from LDAP to the Cisco ACS.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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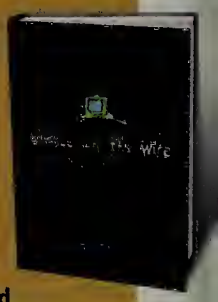
SECURITY LOG

Security Bookshelf

■ ***Silence on the Wire: A Field Guide to Passive Reconnaissance and Indirect Attacks,*** **by Michal Zalewski (No Starch Press, 2005).**



When I first flipped open this book, I was intimidated by the author's use of a somewhat complex mathematical equation to determine the type of browser used to send IP packets. But I became fascinated by his approach to network security from a reconnaissance point of view; most security books focus on attacks. Though the book probably isn't for entry-level security pros, senior analysts and engineers will find it useful. Most chapters start with an interesting anecdote before getting down to some fairly technical details. Zalewski's explanations make it clear that he's tops in the industry.

– Mathias Thurman

CA Reveals Antivirus Flaw

Computer Associates International Inc. disclosed a serious security flaw in its antivirus products. The bug, which affects the Vet antivirus engine underlying CA's enterprise and consumer security software, could be exploited by a remote attacker via a specially crafted Microsoft Word document to cause a heap overflow and execute malicious code, according to CA. Enterprise users received a patch at the beginning of this month.

Files Encrypted, Held Hostage

A hacker has found a way to encode computer files and hold them hostage until the victim pays for a decoder tool, said Websense Inc., which uncovered the extortion attempt. But there's a way to avoid paying ransom: Lurhq Corp. said it found the encryption scheme relatively easy to break.

BRIEFS

UPS Aims to Ease Trade Management

■ UPS Trade Management Services Inc., a unit of UPS Supply Chain Solutions in Alpharetta, Ga., announced a software suite designed to simplify international trade management. UPS TradeSense is aimed at helping U.S. exporters and importers manage customs clearance and security regulations. It allows companies to keep trade data in one location for easier management and connectivity to global supply chain partners. The software also has screen-level security protocols that require users to log in with a personal identification code and allow access only to parts of the system they are authorized to use. UPS TradeSense is available now.

Start-up Releases Exchange Tool

■ Fremont, Calif.-based Zenprise Inc.'s first product offers real-time, automated diagnosis and resolution of operational problems across Microsoft Exchange e-mail systems. Due to ship in August, Zenprise automatically analyzes the Exchange environment, develops historical performance baselines and predicts performance problems. Zenprise also includes a diagnostic and repair database of Exchange symptoms and causes. Pricing starts at $15 per user per year.

IBM Blade Server Package Debuts

■ IBM has released an integrated blade system for the small-to-midsize corporate market that's preconfigured and tested. The system is also preloaded with IBM Workplace Services Express and other software on an IBM eServer BladeCenter HS20 system. Pricing starts at $120 per month for a portal server that can handle 20 users, or $160 per month for a business integration server that can handle up to 1,000 catalog entries. Other pricing options are available.

DOUGLAS SCHWEITZER

Linux Muscles Into Microsoft's Space

IS LINUX A BETTER CHOICE for business than, say, a proprietary operating system such as Microsoft Windows? The debate, full of passion and conviction, rages on both sides of this issue. Over the past several years, Linux has elevated itself as a respectable competitor despite Microsoft's dominance in the operating systems market. Linux is used extensively in today's business operating platforms, in Web servers, the Domain Name System, FTP, e-mail, firewalls, Web hosting, network monitoring and desktop applications, for example. Some form of Linux is used in nearly 80% of companies today. Most of them deploy it from a server level, and interest in desktop functionality is growing. The rapid migration of Linux inside global businesses and government agencies is likely related to the increase in quality, security and cost-effectiveness that Linux provides.

DOUGLAS SCHWEITZER is a freelance writer and Internet security specialist in Nesconset, N.Y. He can be reached at dougneak@juno.com.

Of course, there are arguments from both sides. But when you compare Linux and Windows applications feature for feature, there is very little, if anything, that Microsoft has that Linux hasn't yet perfected.

Security and reliability are, of course, another concern. How can migrating businesses be sure that the security and reliability of their networks will, at the very least, stay intact? Looking at some facts and figures provides a good start. In the past few years, Microsoft has experienced near-catastrophic exploitations with the MyDoom, Nimda and MS Blaster worms. These system exploitations affected countless users and cost individuals, corporations and government agencies millions of dollars in damages and downtime. Since then, Microsoft has had to account for the inadvertent release of part of its sanctified source code, as well as the much-publicized Internet Explorer vulnerabilities that have forced many users to change their preferred Web browsers. In response, Microsoft attempted to heighten security on all applications to prevent further incidents.

It's not as if Linux hasn't also had its share of vulnerabilities. The notable difference, though, is in the initial discovery and patching of existing vulnerabilities. Vulnerabilities within a code are, for the most part, inevitable, but users will find with Linux that vulnerabilities are identified and patches are released quickly, in many cases before users are even aware that there's a problem. Moreover, the Linux community, as opposed to proprietary vendors, provides innate security enhancements and affords a substantial number of resources from developers in the community to ensure that even seemingly insignificant security flaws are properly addressed.

Since security and reliability go hand in hand, it's a fair assumption that the reliability of Microsoft systems may also be lacking. If a system is open to exploitation, downtime as a result of a worm or virus is unavoidable. Furthermore, with such restricted access to the source code, it's possible that code flaws and bugs aren't identified as readily, leaving business-critical applications sluggish and unpredictable. Alternatively, Linux uses the resources of a collaborative development environment, providing vendors with methodically tested code, minimizing the occurrence of flaws and bugs. In addition, this design model offers rapid application evolution and advanced technologies for ever-changing business needs. With frequent application updates and upgrades, Linux systems consistently operate efficiently and effectively.

"Linux is merely a Unix derivative, and Unix is a better operating system for business," says programmer Angel Gomez, who is also chief technology officer at Datatek Applications Inc. in Bridgewater, N.J. "Whether it's SunOS or OpenBSD, they all have one thing in common: They meet the Posix applications interface, which means that business programs can move from one platform to another without any changes."

Unix was the very first nonproprietary networked operating system and has experienced relatively few flaws. Bell Labs researchers created it in a time when perfection, not an instant return on investment, was the objective. Because Linux is essentially a Unix derivative, it follows the same mantra.

Garnering trust in an open-source operating system can be tough, and one of the major downfalls for Linux is its perceived lack of end-user support. Although that may have been true in years past, the rapid adoption of Linux for its superior quality and cost-effectiveness has driven Linux vendors to provide comprehensive technical and customer support. Which means, according to Gomez, that "new hardware does not imply new software. When a business has to invest in a custom software base, it is not prudent to base it on a single vendor proprietary operating system."

With Linux, the uptime is high, the price is low, and the flexibility is amazing. **54488**

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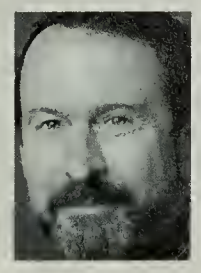
Microsoft

MANAGEMENT

CASE STUDY
Software Reuse: Making It Work
DTE Energy has set up its own "open-source" software operation. Here's how it got in-house developers to buy into reuse. **Page 37**

Q&A
Innovation at the Edge
The future lies at the edge of your company, where it can reach across geographic, corporate and even competitive boundaries to add value, say authors John Hagel III (far left) and John Seely Brown. **Page 38**



OPINION
We're Mad as Hell, But . . .
Users may be fed up with lopsided software licenses, says Gary H. Anthes, but most aren't yet ready to do the hard work of fighting back. **Page 40**

Here's how to anticipate and respond when a major supplier is getting swallowed up. By Mary Brandel

WHEN IT VENDORS Merge

YOU DON'T HAVE TO BE AN IT VETERAN to have at least one scar that was inflicted by the merger or acquisition of one of your major technology providers. For Rick Omartian, IT chief financial officer at The Guardian Life Insurance Company of America in New York, make that two, going on three. After watching Meta Group get eaten by Gartner Inc. and PeopleSoft get chomped by Oracle Corp., he's now focused uneasily on the CRM market as a customer of the beleaguered Siebel Systems Inc.

Meanwhile, Robert Robinson, business systems supervisor at Durr Industries Inc. in Plymouth, Mich., is one of many former

JOHN JELAND

J.D. Edwards customers now experiencing what some might call a "twofer." Now that Oracle has acquired PeopleSoft, which two years ago bought J.D. Edwards, "it's like watching a fish get swallowed by a seal, and then the seal gets swallowed by a whale," he says. "Everyone's aghast at the seal [being swallowed], but no one remembers the fish."

And more merger and acquisition (M&A) activity is forecast. Leaving out top vendors like Microsoft Corp., Hewlett-Packard Co., Oracle, SAP AG and IBM, "if you look at the eight-to-10-year life cycle of a major software product, you can assume that 30% to 40% of those companies will be acquired," says Dale Kutnick, director of research at Gartner.

Last year, according to Kutnick, M&As among technology companies reached their highest levels since 2001, and he expects that trend to continue this year. The upshot: IT executives should be poised to anticipate and respond to vendor M&As.

Here are some tips from M&A veterans about how to survive — and maybe even benefit — when your IT vendors merge.

UNDERSTAND THE VENDOR. If your vendor is being acquired, you need to understand the acquirer. According to Lou Mazzucchelli, a fellow at Cutter Consortium in Arlington, Mass., there are two types of acquirer: those interested in milking maintenance revenues from a strong but stagnant installed base, and those intending to grow their customer base by subsuming a competitor.

With the first type, "there's a vested interest in keeping you as part of the installed base," he says.

The second type is more problematic because there's no reason for two competitive products to coexist. "If you're on the wrong side, your application is going away," Mazzucchelli says. "I wouldn't be surprised if they used strong incentives for the customer to switch sooner rather than later." Even if the vendor promises to keep the product alive, don't look for new features.

GET A SECOND, THIRD, EVEN FOURTH OPINION. Nobody holds all the pieces to an M&A puzzle, so Omartian gets lots of opinions. When he first heard the rumblings that Oracle intended to buy PeopleSoft, he consulted a range of sources. They included Guardian's investments division, other companies using the vendors' products, research firms, industry analysts, independent user groups, media articles and senior executives at both vendor companies. He asked about the likelihood of the merger's success, what both companies stood to lose or gain and possible outcomes for product lines.

When talking to the acquirer, the more senior the manager you buttonhole, the better, Omartian says, since higher-level executives are more likely to stick around postmerger. But balance that input with what you hear among the rank and file. "Look at information from all your sources," he says.

TRUST, BUT VERIFY. Particularly when talking with corporate representatives, don't believe everything you hear unless it's also in writing. "I've been through a lot of mergers, and things change day to day," Omartian says. "Nothing's certain in a merger."

Others agree. During the PeopleSoft/Oracle merger, many customers insisted on meeting directly with CEO Larry Ellison before they believed reports that they'd be supported through 2013, says Jason Averbook, CEO at Knowledge Infusion, a consulting firm in Danville, Calif.

Robinson is applying the skepticism he acquired during the J.D. Edwards acquisition to the Oracle purchase of PeopleSoft. "Questions get asked and answered, but it's just words," he says. "What it really comes down to are the deeds."

For instance, Oracle has promised to work through the Quest International User Group to fulfill requests for product enhancements from the former J.D. Edwards — a practice PeopleSoft dropped, much to Robinson's dismay, when it bought that company. At an upcoming Quest meeting, the group plans to submit some requests to check that promise. "It's a test balloon to see if the process will work," Robinson says.

IF YOU HAVE LEVERAGE, ACT QUICKLY. Companies with a large investment in the acquired technology have some bargaining to do. In the early part of a merger, acquiring firms are particularly sensitive about stabilizing revenues. That's the time customers have the most leverage, and that's why Mazzucchelli advises that you huddle with the acquiring vendor quickly.

"At the instant of the acquisition's closing, if you have any leverage at all, play your cards immediately and let them know, 'I get my concessions or I walk,' " he says. "You've got to play hardball, and the longer you wait, the less negotiating power you have."

Omartian agrees. "When we meet with senior managers, we make clear to them what we're happy with in the relationship and that if we don't see that continuing, we won't be in a long-term relationship," he says.

MEAN IT. If you threaten to walk, you have to be prepared to do it, and that means having an alternative in mind. Start by knowing the value of the software to your organization, Mazzucchelli says. Averbook points out that companies tend to use only 20% to 30% of the features in a software application, so find out which ones you actually need.

Begin running tests of open-source versions of your applications. Even if you can't feasibly fall back on them, just going through the motions should be enough to get the vendor to take the threat seriously. "If I'm highly dependent on a proprietary application that does function *x*, I want an open-source version in my lab so I can use that to put pressure on a vendor," Mazzucchelli says.

HAVE A PLAN. Prepare what Averbook calls a "technology strategy map," aligning the goals and initiatives of your company over the next three years with the technology to support those goals. This will enable you to identify technology gaps, as well as one to three vendors that offer the required technology. When you know what you have and what you need going forward, you can make faster decisions about whether the new, combined company meets your needs, Averbook says.

It beats freezing development while the merger shakes out, which can take six months to a year. "That's like when two airlines merge, you stop flying until you figure out the new pricing model," Averbook says. "In this new era of software consolidation, it's important for customers to take control of their own path."

BUILD IN PROTECTION. Use your software contracts to guarantee service levels and maintenance costs, Kutnick says, and consider requesting guaranteed discounts on maintenance costs in the event of an acquisition.

Acquirers may not honor the level of service outlined in a contract, Kutnick says, but at least you have a strong negotiating point to start with.

"As long as you're contractually obligated to receive that level of service, you have an out," Omartian adds. Guardian also makes sure that it retains rights to escrow code when signing on with smaller vendors, so it can continue development even if the vendor disappears.

BE SUSPICIOUS. Learn to read signs that a company is a potential target based on moves it's making. "If they're issuing a lot of press releases or expanding into new functional areas, you can figure they'll be in this for a while," Averbook says. But if you don't see a lot of innovations to the product suite, that might be a company's way of positioning itself to be bought.

This doesn't mean you need to avoid potential targets, Kutnick says. Just maintain a clear delineation between applications that might fade from the scene and the software underlying your infrastructure.

"Let's say you're going to do something with BEA, which is high on my list of likely acquired companies in the next three years," Kutnick says. "You need to understand all the interfaces and document where you make changes. You can use it, but with open eyes." **54379**

WHAT THEY'RE UP TO

Mergers and acquisitions happen for various reasons, and smart users need to know what their vendors are up to. Dale Kutnick, director of research at Gartner, breaks M&As into three categories:

Accretive

■ **Most current deals fit into this category.** They're intended to improve margins via cost-cutting; combining overlapping products, services and processes; and increasing market share.

Synergistic

■ **These M&As are more beneficial to users.** They occur when the resulting merger combines best practices from the two companies' processes or capabilities, such as customer management or product innovation. An example is Cisco Systems Inc.'s M&A activity in the late 1990s. Cisco allowed its new acquisitions to concentrate on product innovation and maintain their creative cultures while integrating the new units into its own well-established business processes.

Innovative

■ **These deals result when major changes in business processes reshape the market.** An example is BEA Systems Inc.'s 1998 acquisition of WebLogic. BEA turned the new unit's Java-based application server into its main product line and top asset.

Brandel is a Computerworld *contributing writer in Grand Rapids, Mich. You can contact her at mary.brandel@comcast.net.*

Software Reuse: MAKING IT WORK

DTE Energy may have cracked the cultural side of reusable software. By Gary H. Anthes

AT DTE ENERGY CO., lone wolves need not apply. "Lone-wolf developers" is actually what Lynne Ellyn calls them, and she says they are the reason so many companies fail at software reuse. Ellyn, a senior vice president and CIO at DTE Energy, claims that her company has found a better way — one that marries the principles of open-source software with keen insights into how people learn and what motivates them.

Ellyn says the Detroit-based diversified energy company has set up an internal "open-source" software operation. Developers across the $7 billion company add their creations to a reuse library and take needed components from it. Sometimes they put the components back after improving them. The spirit of the program borrows heavily from the external open-source movement that's behind the Linux operating system, the Apache Web server and other popular pieces of nonproprietary software.

DTE Energy has focused on the concept of "meritocracy," one of the underpinnings of the open-source movement, according to Ellyn. Meritocracy has two basic tenets at the company: First, items submitted for inclusion in the reuse library must be reviewed and judged to be of high quality, or they won't be accepted. Second, the people whose submissions are accepted are held in high esteem by the development communities of which they are a part.

This spirit of meritocracy, and the sense of community that goes with it, are the missing ingredients in most failed software-reuse efforts, Ellyn says.

Reinforcing Reuse

- Establish a software review panel and process.
- Hold regular meetings of developers at various levels. Let practitioners "own" the meetings.
- Establish mailing lists, some of them specialized by technology or function.
- Recognize excellence and applaud contributions, but avoid status and hierarchies.
- Study project requirements and designs for reuse opportunities.
- Show "lone wolves" the door.

The review and approval function at DTE Energy is performed by a panel of five senior developers. "They are all pretty universally admired within the organization for their excellence in software development," Ellyn says, "so they have some stature with our community."

Some of the components included in the reuse library have been volunteered by programmers who developed them for a project and saw the possibility for broader use. In other cases, a development team has been commissioned by the review panel to develop something specifically for reuse. The panel reviews requirements at the beginning of all projects, looking for reuse opportunities.

"Either way," Ellyn says, "[the component] still has to be judged, and the process of acceptance is one of recognizing the excellence in people. The dynamic is around public recognition of merit, and that's very energizing."

SEPARATE CODE

DTE Energy's software-reuse program is based on the notion of shared services, in which various functions common to multiple applications — such as security, logging, lookup or configuration — are carved off as separate code (usually Java) that can be invoked as services by new applications as they are built.

Developers meet quarterly and sometimes more often to discuss ideas, problems and best practices. And meetings of "development communities," as for Java, happen once a month, says Phillip Smith, one of the five technical architects on the review panel. "Supervisors don't own our meetings; the practitioners own them," he says. "So it's not your boss disseminating things; it's a peer-to-peer type of communication."

People who have earned industry certifications, such as for J2EE, are recognized at these meetings, as are those who have contributed to the reuse repository. "We say, 'This person has done great work. Let's applaud that,' " Smith says.

Developers also extensively use internal mailing lists and discussion groups. Some of the 15 or so lists are devoted to specialized groups, while others include all 400 developers, Smith says. "Someone will send out a question like, 'I'm struggling trying to get this inserted in the database. Has anyone out there come across this problem?' Regardless of the solution, it's owned by the whole group. Everything is focused on community," Smith says. Project teams are "cross-pollinated" with developers from different Michigan offices and with people of varying levels of ability, he says.

NO HIERARCHY

Although contributors are publicly recognized, the company takes pains not to establish a hierarchy of developers. "We try to steer away from status, because status just divides people," Smith says. "We definitely applaud [reuse] and celebrate it, but it's not like, 'Oh, this person has submitted three components, and this other person has only submitted two.' "

DTE Energy saved $75,000 last year by reusing components, estimates Smith. So far this year, four new projects have incorporated 10 components each on average, or about 40% of their total application code.

Without the kind of cultural support DTE provides, reuse is likely to succumb to any number of technical pitfalls, says Tom Welsh, an analyst at Cutter Consortium in Arlington, Mass.

"DTE is going in the right direction. Reuse is a corporate team business and cannot usually be undertaken by individuals or even small groups," says Welsh.

Vamsi Dantulari is a Java programmer working on a voice-response development project at DTE Energy. She says the project has used four source-code components from the reuse library. Some of them would have taken weeks of development effort had she coded them from scratch, she says.

Dantulari hasn't yet contributed a component to the reuse library, but she did contribute to the development community recently by helping to set up a Java training program. "Two years back, not many people knew about me," she notes. "But I got a lot of recognition for that." **54381**

A Palette of Options

The components in DTE Energy's reuse repository can be design or development templates, but most are Java code, says Phillip Smith, a member of the reuse review panel. They can be application services such as billing or customer-interface functions, or technical services.

In some cases, developers take source code or binaries and incorporate it into their own code, and in others, the code is invoked strictly as a service.

For example, DTE Energy's panel of technical architects recently commissioned the creation of an "environmental service." By calling this service, a program can move from development to integration to acceptance testing to production without being recompiled. The service automatically gives the program the correct properties for the environment it's in.

– Gary H. Anthes

Innovation at the Edge

The place to look for an advantage is at the edge of your business, say John Hagel III and John Seely Brown.

Q&A

Most companies are structured to run their operations efficiently and squeeze as much profit as possible from each transaction. But emerging competitors in Asia are much more interested in innovation, and they're changing the rules about how to achieve it.

In their new book, The Only Sustainable Edge, **John Hagel III** *and* **John Seely Brown** *look at this approach to innovation and its implications for U.S. companies and IT organizations. They talked with* Computerworld's *Thomas Hoffman about the changing business landscape.*

As you point out, most companies are structured to run efficiently, not to drive innovation. For companies to flip the equation, they'd need to make some pretty wrenching changes to their operating models, yes?

JH: I would certainly accept that it's a challenge. To get better faster, you need to do that in partnership with other companies. No matter how many smart people there are in your organization, there are a lot more smart people outside that you could work with. We tried to provide a path for companies to make this transition — develop those relationships to get better faster and develop capabilities faster.

JSB: The first step is to move from a very closed view of innovation to a more open model where there are suppliers and other people around the world that are at least as talented as people within our organization. [Then] we can ask questions such as, "How can we tap into their innovation?" and "What do we want to consider to be our distinctive edge?" and "How can we work with these people and extend our own capabilities?"

If you look at what we're doing with computer architectures, we can take advantage of loose connections and coordinate processes and practices with other organizations. From a technical point of view, we now have SOA [service-oriented architecture] and virtualization architectures and this whole notion of social software. Organizations can now examine how this folds into SOAs to support long-lived conversations as opposed to short-lived transactions.

Are some companies doing this effectively now?

JH: One company that we profile extensively is Li & Fung in the apparel industry. [It] helps apparel designers assemble customized supply chains and deliver very tight performance requirements in terms of speed to market and cost and quality objectives, but [it's] doing it in such a loosely coupled way.

This parallels what the SOA and Web services community would talk about in defining interfaces to move one module in and one module out. Most American companies tend to very tightly define requirements throughout all stages of the process.

A lot of this is being driven by the mind-set and the sense of urgency in Asia. There's the sense that the wage rate advantages they have are very transitional and that if they fall back on that, they are going to rapidly lose market share.

Why are the greatest opportunities found at the "edge," whether it's the edge of the business where companies interface with business partners or at the periphery of mature markets?

JSB: At the edge, you have less inertia, so you can experiment, and you don't have big legacy systems, so my competitive edge is to think about things differently.

JH: At the edge, you will be able to build your capabilities much more rapidly than organizations that are more inward-focused.


John Hagel III


John Seely Brown

Is it fair to say that most companies will struggle, if not fail, at trying to move in this direction?

JH: If they continue to be complacent and focus on operational efficiency versus driving capability, they will fail.

What we see in these Asian companies is a focus on rapid innovation. It's a much different mind-set than what most Western companies do today.

JSB: And Western companies [need] to recognize that they don't have a divine right to be the main source of innovation.

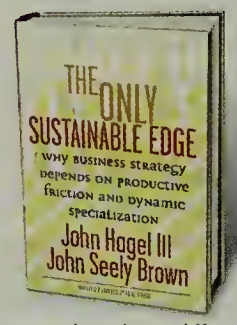
Are CIOs well positioned to support businesses that try to make these transformational changes?

JH: IT is a key enabler of these practices, and CIOs can be catalysts and change agents to help senior management recognize what's available to support these broader changes. There's also the ability to recognize what's possible through SOA, through loose coupling — an important foundation in recognizing new processes.

JSB: Part of the irony is that it's the IT infrastructure — like monolithic ERP systems — that keeps businesses from experimenting with new things. It's not always the big bang but the ability to make new iterations with blinding speed that drives new opportunities. **54421**

BOOK EXCERPT

A New Worldview



We believe that a new opportunity and a new imperative -- the acceleration of capability building – will shift our individual and collective mind-sets from a worldview that focuses on static, zero-sum relationships to one that emphasizes dynamic, non-zero-sum relationships. As we adopt these different perspectives, we will find that most of our institutions today are fundamentally lacking.

Static, zero-sum worldviews generally arise when people focus on the allocation of existing resources. Existing resources have a fixed quantity, and with relatively modest exceptions, if one party acquires a resource, other parties are deprived of that resource.

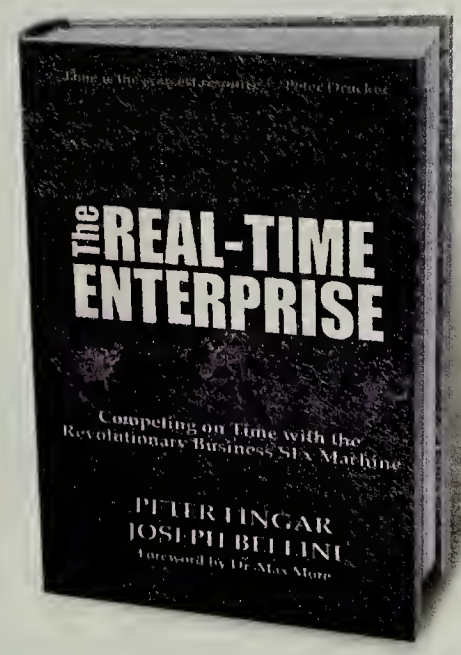
With its 70-year focus on equilibrium states, the economics profession has reinforced this orientation. Equilibrium states are easier to model quantitatively, but such models simplify the world, including the key assumptions that capabilities are a given.

If we recognize that capabilities are not a given but can be quickly built, our worldview undergoes a fundamental shift. Now we become less concerned with the distribution of rents and more focused on the creation of new rents. Relationships that were previously viewed as competitive become more complementary – we begin to realize that we need other specialized players if we wish to deepen our own capabilities more quickly. The new value we can create together moderates, even if it never entirely eliminates, the concerns about the distribution of the proceeds. We begin to turn our attention more to the people we work with, because they hold the key to the acceleration of creatively building capability – and therefore the creation of new value.

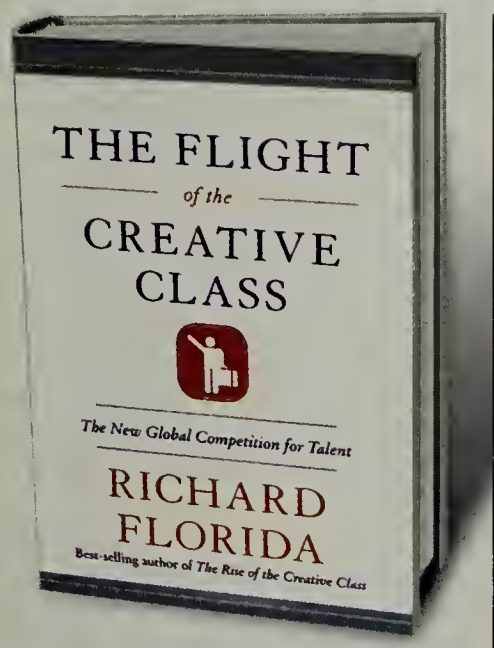
More generally, stocks of existing assets, including information and knowledge, diminish in value relative to flows of new ideas and experiences that can help accelerate our capability building. In many cases the institutional ability to accelerate capability building will depend as much on position in relevant flows as on the attributes of the institution itself. For this reason, this new worldview emphasizes the importance of the evolution of local ecosystems, global process networks and communications and transportation infrastructure rather than focusing on institutions in isolation.

Adapted from The Only Sustainable Edge: Why Business Strategy Depends on Productive Friction and Dynamic Specialization, *by John Hagel III and John Seely Brown, with permission of Harvard Business School Press.*

Competing IN A New Age



Three books look at dwindling U.S. talent, project management and the realities of real time. BY THOMAS HOFFMAN



■ **The Flight of the Creative Class: The New Global Competition for Talent**, *by Richard Florida (HarperBusiness, 336 pages, $25.95).* For decades, the U.S. has reigned as the world's center for innovation, be it in high tech, science or entertainment. And as Florida astutely observes, "Of critical importance to American success this last century has been an influx of global talent," from Scottish-born steel titan Andrew Carnegie to the Hungarian co-founder of Intel, Andy Grove.

But as Florida, the Hirst Professor at George Mason University's School of Public Policy, argues, a combination of factors, including better occupational and educational opportunities in places like Singapore and India, are leading to a global war for creative talent — a battle that he believes the U.S. is positioning itself to lose.

Tighter immigration and visa policies that have been adopted since 9/11 are leading an increasing number of foreign-born graduate students to enroll in non-U.S. universities and to work outside the country in more-receptive environments. But that's just one of the problems that's diminishing the nation's ranking as a key destination for creative workers, says Florida.

He also notes that 40 million people, or roughly 30% of the U.S. workforce, are members of what he terms the "creative class" — people who are employed in industries ranging from science and engineering to the arts and white-collar professions such as law. But that leaves the other 70% struggling to survive in lower-paying manufacturing and service-industry jobs, a situation that Florida says is "exacerbating economic inequality."

Meanwhile, regions such as Bangalore, Tel Aviv, Singapore and Beijing are aggressively recruiting foreign technology companies and investing heavily in higher education and in research and development.

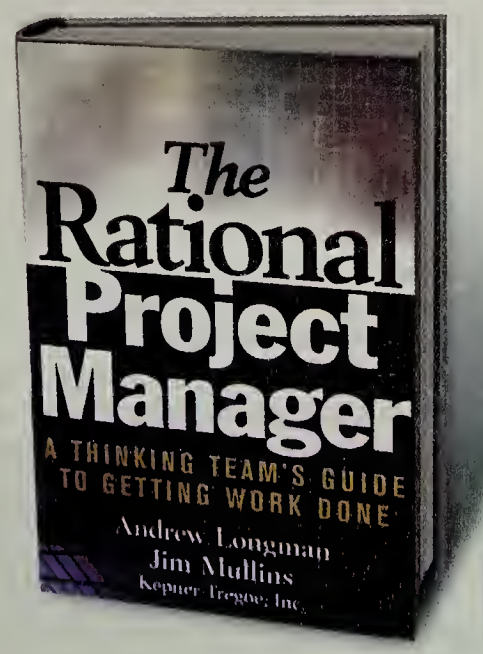
In this smartly written and well-documented book, Florida calls upon government, business and academic leaders — as well as everyday citizens — to develop something as large-scale as the New Deal to build a fully creative society. Even those readers who disagree with Florida's anti-isolationist views will find this well-crafted tome thought-provoking and worthwhile.

■ **The Rational Project Manager: A Thinking Team's Guide to Getting Work Done**, *by Andrew Longman and Jim Mullins (John Wiley & Sons Inc., 256 pages, $27.95).* Savvy project managers know that the biggest roadblocks to delivering projects on time and within budget and scope are typically organizational inertia and people issues. The authors, who are consultants at Kepner-Tregoe Inc. in Princeton, N.J., do a deft job of addressing these topics while incorporating their organization's problem-solving and decision-making techniques.

They also provide a useful perspective on why today's projects are different from those that came before. For example, they point out the challenges of managing a project that's planned by one group and implemented by another.

The book includes a chapter devoted to managing people, and although some of the authors' suggestions may come off as no-brainers ("Does the performer have the necessary knowledge and skill to perform?"), they address fundamental questions that project leaders should continually be asking themselves.

The authors raise issues that are rarely included in project management texts, such as the importance of obvious questions like, "Why are we doing this project?" Also of value are tips and pitfalls boxes throughout each chapter.



Given the increasing amount of complexity that today's project managers face, it's refreshing to come across a book that does such an effective job of breaking these challenges down into bite-size portions.

■ **The Real-Time Enterprise: Competing on Time With the Revolutionary Business SEx Machine**, *by Peter Fingar and Joseph Bellini (Meghan-Kiffer Press, 224 pages, $34.95).* The notion of a real-time enterprise (RTE) that's able to sense and respond quickly to customer demands and market shifts has been around for years. But in the real world, only a few companies, like Dell Inc. and Cisco Systems Inc., have been able to pull this off, in part by leveraging business process management systems to flatten their operations and differentiate themselves from competitors bound to old technologies.

Fingar, an executive partner at The Greystone Group LLC, and Bellini, a senior vice president in the software products and services group at Brooks Automation Inc., do a proficient job of documenting the successes of RTE pioneers, including General Electric Co., The Progressive Corp. and Wal-Mart Stores Inc. The authors detail how they became more responsive to customers and mastered business process management to help them dominate their markets.

Although the authors underscore the need for organizations to provide workers with ample time to absorb the process changes that come with RTE, they devote just two and a half pages to the most critical requirements for success — people and corporate culture. (Note: "SEx Machine" refers to an acronym for strategy and execution, not to be confused with James Brown's 1970 funk classic.) **54236**

EVENTS

IT Infrastructure

■ **July 13-15, San Diego**
Sponsor: Burton Group
Catalyst Conference North America includes multiple tracks and topics, such as the business justification for identity management, the future of the network application platform, implementing Web services, the right VPN for remote access, preparing networks for IP telephony, and evolving security strategies.
www.burtongroup.com/catalyst

IP Communications

■ **July 13-15, Boston**
Sponsor: Wainhouse Research
WR Summit 2005: Driving the Enterprise With IP Communications includes directions in video and collaboration, marrying videoconferencing with HDTV, videoconferencing and other synchronous technologies in education, the managed services conundrum and transforming business communications with embedded collaboration. **www.wainhouse.com/wrsummit**

Leadership

■ **July 27-29, Annapolis, Md.**
Sponsor: The Conference Board Inc.
Topics of the 2005 Leadership Excellence Summit: Ethics, Integrity & Character include building a culture of leadership excellence; decision-making; authenticity, credibility and trustworthiness; leadership challenges of a company in transition; transformational leadership; and globalization of leadership concepts. **www.conference-board.org/conferences**

ITIL Processes

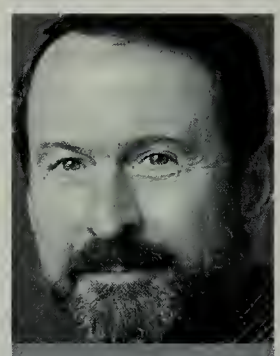
■ **Aug. 10-11, Scottsdale, Ariz.**
Sponsor: Pink Elephant
ITIL Implementation Road Map includes topics such as establishing a service desk according to the Information Technology Infrastructure Library; defining an ITIL-enabling organization structure and process roles; integrating people, processes and technology; IT governance; building an IT service management improvement plan; and implementing configuration management. **www.pinkelephant.com/conference**

GARY H. ANTHES

We're Mad As Hell, But . . .

I HAVE A FANTASY that goes like this: I'm downloading some software from a vendor's Web site, and I'm presented with a screen with many lines of tiny type followed by two boxes. One says "I accept," and the other says "I do not accept." I'm feeling lucky — or maybe just cantankerous — so I click the "I do not accept" box. The download comes to an abrupt end.

But a few moments later, I receive an e-mail from the software vendor. "Dear sir," it says, "we couldn't help noticing that you rejected our license agreement, the one that gives us all the rights and you no remedies when our software crashes or admits hackers, as it surely will. Frankly, we don't blame you. As buyers, we'd never sign anything like that either. But we really, really, really want your business, so we are going to let you have the software anyway. We just ask that you keep this quiet."



GARY H. ANTHES is a *Computerworld* national correspondent. Contact him at **gary_anthes@computerworld.com.**

Fantasy, indeed. But recently, I was given hope that packaged software license agreements, surely the most lopsided in all the world of commerce, might be changing. Two of the IT luminaries I interviewed for *Computerworld*'s recent special report on the future of IT [QuickLink 52738] said the time is ripe for software buyers to assert themselves. Users are so fed up with bugs, bloatware and security flaws that they will finally rise up and *demand* guarantees and remedies from vendors, they said.

At about the same time, *The Wall Street Journal* published a story saying that customers are "starting to press software makers to assume responsibility for faults and pick up some of the costs." The *Journal* noted darkly that "even a whisper of the 'L word' — *liability* — sends shudders through the software industry."

But after poking into this issue, I found few shudders among either sellers or buyers. Vendors have no plans to change, and while users grumble, for the most part, they accept the status quo.

Buyers' legal leverage is apparently so weak that when I asked Mark Grossman, an attorney at DeWitt Grossman PL, what advice he gives clients, he cited IT measures, not legal ones: "Redundancy, backup, bringing in security consultants and patching the holes."

So my plan to write a front-page story with a catchy headline like "Software Customers Cast Off Their Chains" or "Users Mad as Hell, Not Going to Take It Anymore" evaporated.

But that's not quite the end of the story. David Weidenfeld, an attorney at McDonald's Corp. who specializes in IT procurement, says nothing much has changed in recent years when it comes to buying packaged software. But, he insists, it's not true that buyers have no leverage. Whereas Joe Consumers like me won't get anywhere by clicking the "I do not accept" button, it's a different story for corporate buyers. "There are things you can do," he says, "but you have to work really hard."

For example, Weidenfeld says, it took him months of negotiation to get a software vendor to amend its boilerplate contract to close what he saw as a serious security loophole. The software had a back door — which the vendor told customers about -- by which it automatically reported usage of the software for purposes of verifying compliance with licensing terms. But Weidenfeld insisted on a provision that stipulated to the vendor, "You will have no code in this software that's not part of the business application, and if you do, and anything happens, you are responsible for all the damages that occur."

Although Weidenfeld achieved a significant victory, he says too often the purchasing and legal people negotiating with software vendors are not trained in IT, are not part of the IT department and by habit focus on price negotiations. "They say, 'This is not the mainstream of our business. I lowered the price a little; I'm happy, let's get out of here.' "

Weidenfeld says that to break this mind-set, all procurement of IT should be consolidated under the CIO, but he notes that the CIO may need a significant boost in staff and budget to handle the load.

Successful negotiating is a matter of hard work and resolve, he says. "If you aren't prepared to give the vendor a flat 'no,' or a 'not now,' there's a limit to what you can accomplish."

So when the time is right for that front-page story, perhaps the headline will say, "Users Work Like Hell, Not Going to Take it Anymore." **54237**

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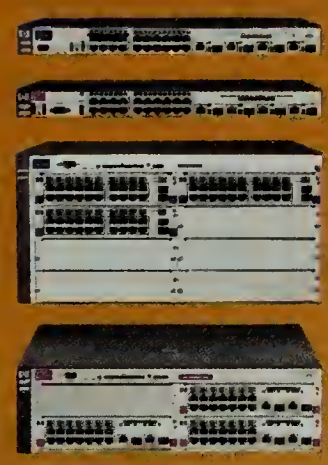

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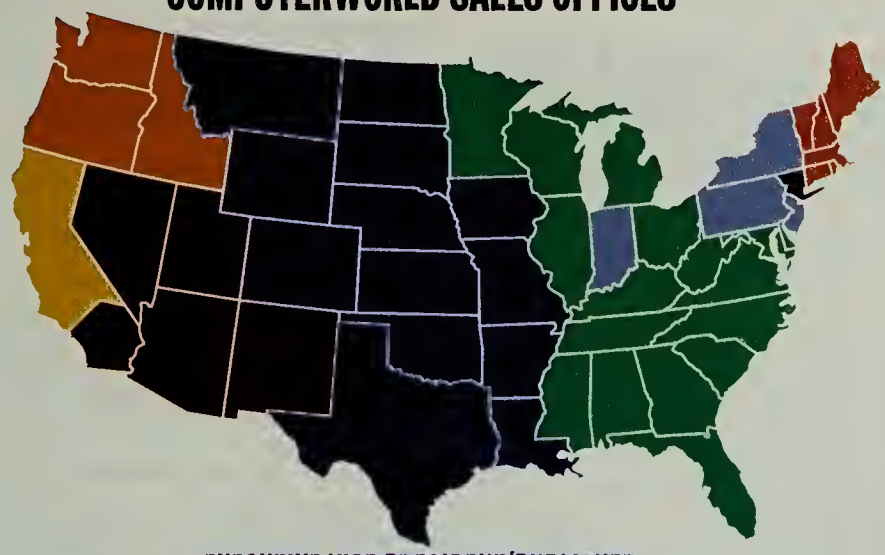

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Spyware

consent. Both bills still have to be approved by the Senate and signed by President Bush.

Robert Olson, a systems administrator at Uline Inc., a Waukegan, Ill.-based distributor of packing and shipping materials, said he's "ecstatic" that Congress is taking action against spyware. "The biggest win we get out of this is the availability of a solid definition that antispyware vendors can start working with" to identify and block offending programs, he said.

But like Gelfound, Olson said stopping spyware coming from overseas won't be easy. "There's really no way to enact the penalties against somebody who is pushing these things from outside the country, unless you get other governments to agree," he said.

The bills would establish a useful definition of what constitutes spyware, said Pete Lindstrom, an analyst at Spire Security LLC in Malvern, Pa. "They provide a framework for deciding what exactly is good and what's bad," he said.

Several vendors of antispyware tools have been sued by companies that serve up Internet advertising, claiming that their products were being erroneously identified as spyware. Lindstrom said the bills approved by the House "do a good job of assigning motives on people" in such cases.

One of the bills that was passed last Monday seeks to prohibit practices such as using spyware to hijack a Web browser, install programs that monitor keystrokes or modify PC settings. The proposed law also requires that prominent opt-in notices be displayed by all programs that monitor and collect information about the online activities of users.

The other bill would make it illegal to use spyware programs to alter security settings or to access personal data for the purpose of defrauding users (see chart).

The proposed laws are good for dealing with "homegrown" spyware, said Jarrad Winter, network security manager at Western United Insurance Co. in Irvine, Calif. "But really, the most destructive stuff comes from overseas," he said. "So in the grand scheme of things, I don't think this will make a big difference."

What's also needed, Winter said, is a continuing focus on developing better technical fixes for identifying, weeding out and stopping spyware programs. **54686**

Spyware Legislation

Securely Protect Yourself Against Cyber Trespass Act (H.R. 29)
Proposes fines of up to $3 million for purveyors of programs that illegally gather information, monitor usage activity, hijack Web browsers and modify computer settings.

Internet Spyware Prevention Act of 2005 (H.R. 744)
Proposes jail terms of up to three years for people who use spyware programs to intentionally alter computer security settings or to access or transmit personal data with the intent of defrauding another person.

FBI Broadens Scope of Replacement IT Project

BY GRANT GROSS

FBI DIRECTOR Robert Mueller last week disclosed more details about the agency's plan to develop a replacement for the unfinished case-management system it scrapped in March, saying that some other existing applications will also be replaced as part of the project.

The new system, called Sentinel, is due to be rolled out in four stages beginning late next year, Mueller told a Senate appropriations subcommittee. The FBI expects to have the full system in place by early 2009.

Sentinel will incorporate the case management functions that were supposed to be supported by the Virtual Case File system, which the FBI shelved after a four-year, $170 million development effort [QuickLink 53125].

In addition, the new system will eventually replace applications that the FBI uses to manage criminal informants and track bank-robbery statistics, Mueller said. He noted that Sentinel will support XML technology for data-sharing purposes.

The FBI doesn't yet have a cost estimate for the project, according to an FBI official who asked not to be identified. She said the system likely will be based on commercial software that has been tweaked to improve its security. The agency plans to issue a formal request for proposals to IT vendors by midyear.

The FBI is "confident we're in a lot better position for the future" with Sentinel, the official said. "The capabilities will go well beyond Virtual Case File."

In written testimony to the Senate subcommittee, Mueller said the FBI will be able to gradually add IT capabilities with Sentinel. "We will roll out key technical services in phases, such as records and case management capabilities, to smoothly transition into the new system while retiring legacy applications," he wrote. **54659**

Gross writes for the IDG News Service.

LESSONS LEARNED
The FBI seems to have figured out how modern IT systems development is done, Frank Hayes says. **PAGE 46**

Continued from page 1

DB2

the mainframe version of DB2. The analyst, who asked not to be named, noted that as part of a long-term strategy, his company is looking to move applications to Windows. He said he fears that the firm will eventually replace DB2 with Microsoft Corp.'s SQL Server database companywide.

That message was repeated often by users at the conference and elsewhere. Although customers said they're generally pleased with the technical direction of DB2, some said IBM needs to step up its marketing of both its flagship database technology and its Informix product line.

Those users' calls for more visibility from IBM came as Gartner Inc. released a report showing that Oracle Corp. recovered ground in the worldwide relational database market last year to draw roughly even with IBM. According to Gartner, IBM's sales grew 5.8% last year to $2.66 billion, compared with a 14.6% increase for Oracle to $2.64 billion.

IBM had a 34.1% market share, compared with 33.7% for Oracle, Gartner found. Microsoft was a distant third with a 20% market share, although Gartner said the company's yearly revenue grew 18%.

IBM "could do better marketing [DB2] to small businesses," said Philip Nelson, a database administrator and a consultant at ScotDB Ltd. in Edinburgh. As a result of IBM's push to automate DB2 management routines, the technology is potentially attractive to smaller companies that want to avoid heavy administration costs, he noted.

Robert Omerza, president of Chicago-based IDUG and a systems manager at United Parcel Service Inc., said that over the past year or two, IBM has recognized that there's an awareness gap about DB2's capabilities. IBM has started taking steps to address that gap by marketing itself more to the DB2 community and pushing colleges to offer courses on the software, Omerza said.

A user who runs DB2 on IBM's iSeries systems but didn't attend the IDUG conference said that IBM would have to invest a lot of money to alter the perception that DB2 is a contender on platforms besides the iSeries.

"We typically don't even think DB2 when we think of other platforms" like Linux and Unix, said William Gabby, North American operations manager at Cargill Inc.'s Global Financial Solutions unit in Minnetonka, Minn.

For its part, IBM says it's creating partnerships and investing resources to promote DB2. Paul Rivot, director of competitive technologies and strategy in IBM's information management division, cited an alliance with SAP AG that was announced in April under which IBM will optimize DB2 to better run with SAP applications.

IBM also launched a recent blitz that involved 2,000 sales representatives calling on Oracle customers to propose switching to DB2.

DB2 is a solid product technically, said James Governor, an analyst at RedMonk Inc., a consultancy in Bath, Maine. However, when IT users think of DB2, he noted, they see a high-end database rather than what it really is: a broad family of products that meet a wide range of needs. **54683**

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FRANKLY SPEAKING ■ FRANK HAYES

FBI on the Move

HOW FAST CAN THE FBI MOVE? Last week, FBI Director Robert Mueller told a Senate subcommittee that the bureau is working on a new computer system that will let agents share information about cases they're working on, but the software won't go live for another year and a half (see story, page 45).

If that sounds slow, you haven't been paying attention.

This new system, dubbed Sentinel, is replacing the Virtual Case File project. That's the one the FBI officially spiked in March, after $170 million and four years of slipped schedules — and a mere three months after it became clear that Virtual Case File wasn't going to do what the bureau needed.

Truth to tell, when Mueller announced the end of Virtual Case File, I hoped for the best and expected the worst. Killing a big IT project, especially a big government project, isn't easy.

In fact, the official position of Science Applications International Corp. (SAIC), the contractor on the old project, was that Mueller was wrong, Virtual Case File wasn't dead, the software was still being tested, and the FBI wouldn't be making any decisions on what to do next for three months or more.

I assumed that between politics and bureaucratic foot-dragging, that last estimate would be close to correct, even though SAIC was wrong about everything else.

Two months later, there's a new project with a workable schedule and a phased rollout. That's impressively fast.

Equally impressive is what the FBI has learned from the failure of Virtual Case File. According to Mueller's prepared testimony before that Senate appropriations subcommittee, Sentinel will be developed and put into use in four distinct phases. Functions of legacy applications will be rolled into each phase so they can be tested and implemented before the legacy systems are retired.

Each phase of system development will deliver stand-alone capabilities. And each phase will be fully funded before work starts, so the project won't be orphaned or strangled because of budget cuts over the next three to four years.

Yes, it's nice that Sentinel will also be fully buzzword-compliant: Mueller told the senators the system will use XML to facilitate information sharing, which must have impressed the politicos greatly. But the actual technology is background noise.

What's important is that the FBI seems to have figured out how to do modern IT systems development. And its chief executive — Mueller — appears to be fully behind a process of quick delivery of usable work, incremental rollouts and flexible implementation.

Mueller gets it. He supports it. And he's making the decisions to make it happen fast.

How did that come to be? Mueller has reportedly always taken an interest in IT, but he's no techie. Someone helped him get a clear picture of the development process — not just the bottom line — so he could give it the executive support it needed.

That someone was most likely Zalmai Azmi, who's been serving as the FBI's CIO since last year. But whoever it was, getting Mueller up to speed meant Mueller looked a lot smarter in front of the senators holding the purse strings last week. And Mueller, in turn, could better support the FBI's IT needs.

And instead of squeezing through bureaucratic bottlenecks, the FBI is on a fast track to getting Sentinel working.

Will Sentinel hit all its marks and go live starting at the end of 2006? Maybe; maybe not. At least now it has a chance.

We talk a lot about the importance of getting top-level executive support for IT initiatives. But we don't often get to see such a clear example of the benefits — both for IT *and* the boss.

We still don't know how fast the FBI can move. But now at least we know why the FBI can move fast.

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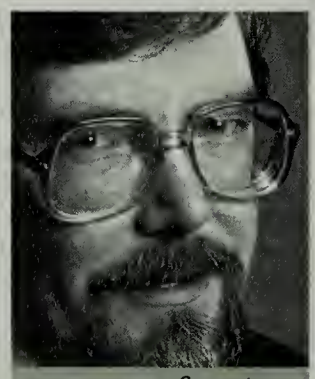

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SHARK TANK

The Easy Way, the Hard Way

Engineer gets an e-mail from sales that contains a copy of a fax inquiry from a customer. Is there a way of telling from this message what the customer's fax number is, so I can reply that way? he asks IT pilot fish. "Naturally," says fish. "All I had to do was call the originating sales guy to get the fax number, and then pass it along to the engineer – who is now even more amazed at the technical genius of the IT department."

Um . . . No

There's a complete power failure at the building that houses this hospital's copy and bulk mail center. No patients are affected, but net admin pilot fish calls the help desk via his cell phone to spread the word. "The help desk tech connected me to a secretary," says fish. "I told her I needed to send an 'all user' e-mail to notify everyone that our phones, faxes and servers were down, and started dictating the e-mail message. About halfway through, she said, 'Wait a minute. Can you put this in an e-mail and send it to me?' "

Now What?

Field tech calls in to this vendor's support office needing some information and a file from the server. "Our new trainee takes the call on speakerphone," reports a pilot fish on the scene. "I overhear the tech ask for the file. The trainee doesn't know where the file is, so the tech is going to walk her to it. 'First, go to My Computer,' he says. The trainee says, 'OK, just a minute,' and places him on hold. She then walks over to *his* computer, picks up the extension and proudly announces, 'I'm there, now what?' "

Downside

Human resources director wants to publish the employee manual on the company intranet, and IT pilot fish is tasked with making it happen. Then fish gets an idea. He puts the e-manual on a mini CD and suggests that, along with the intranet version, a CD copy could also be handed out to any employee who wants one. Nonplussed HR director doesn't see the advantage: "But to use the CD, the employee would need a computer."

Still a Few Bugs In the System

This bakery has just opened a small balcony lunch area, and the cashier proudly tells customer pilot fish about the new computer system as he takes fish's order. "He said that it sent the order right downstairs to the kitchen, where they would prepare our meal and send it up," fish says. "After selecting our order from the computer screen, he leaned over the balcony and yelled, 'That's two Cokes.' The software just said 'soft drinks.' "

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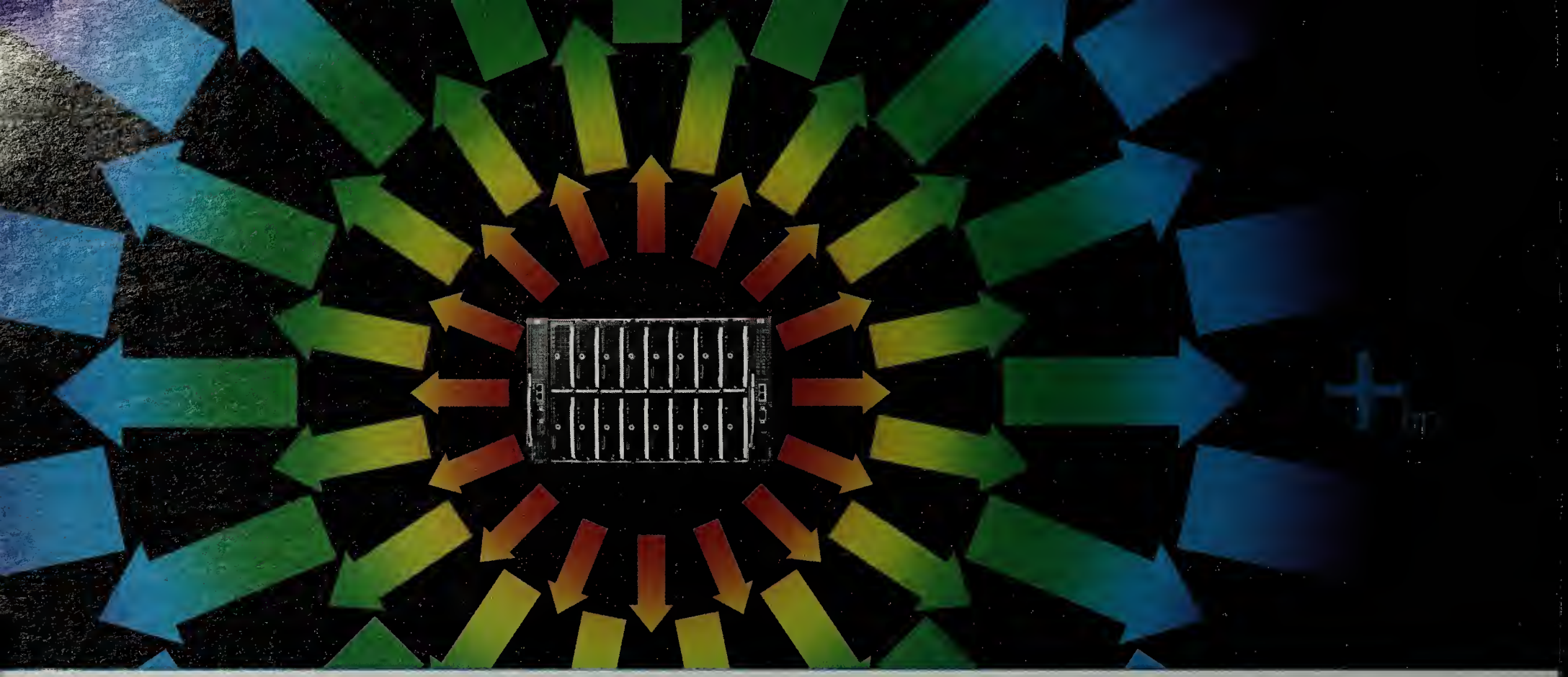

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